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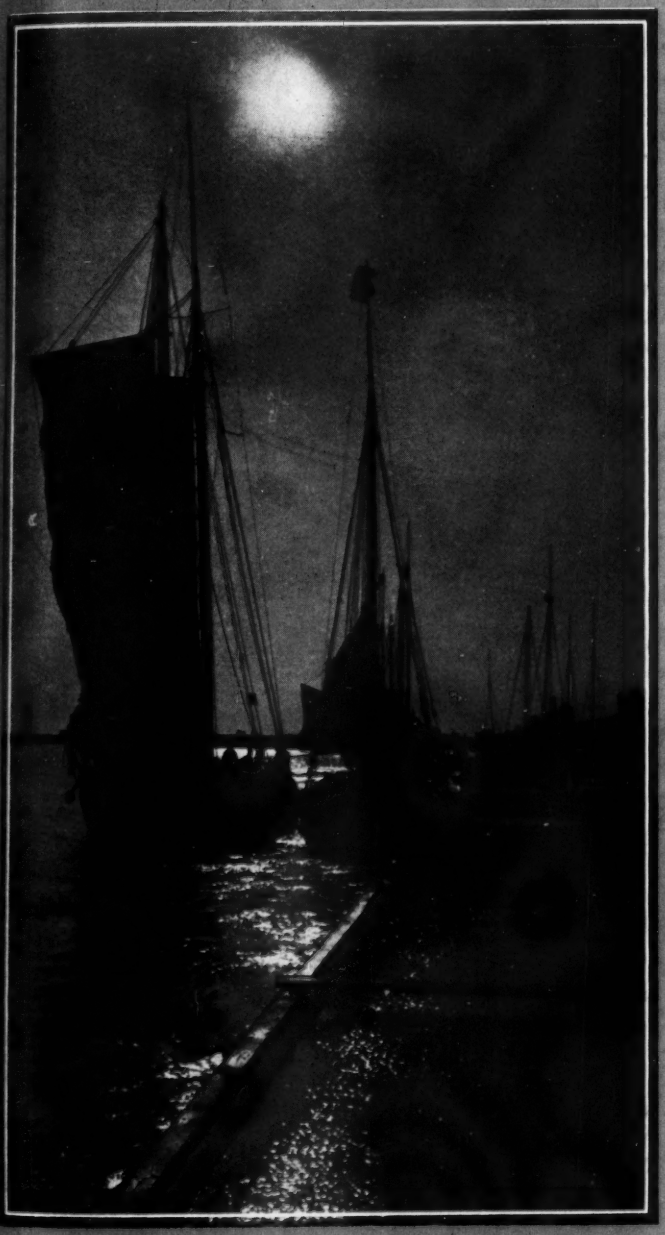
The Plumbing and Heating Weekly

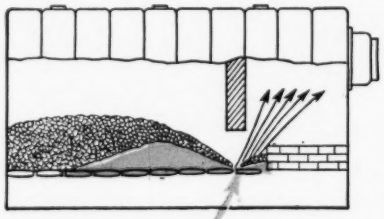


An oyster fleet at anchor. Stream pollution is destroying oyster beds.

Menace of Stream Pollution

Connecticut faces need for large expenditures to control stream pollution

NOVEMBER 10, 1928



here's

what worries janitors

. . . and tempts owners to defy smoke ordinances

When the fire quickly burns through on any part of the grates . . . when frequent attention is necessary to keep those grates covered . . . then the janitor starts grumbling and the owner denounces smoke ordinances.

In the Weil-McLain Smokeless Boiler there is no thin point in the fuel bed, located under or behind a hanging arch, to quickly burn through.

Instead, there is a uniformly deep, heavy fuel bed, which keeps all grates well covered for many hours. No short firing periods. No special firing. No special kinds of fuel.

The complete details of this modern type of smokeless boiler will interest you. Write for booklets and full information.

Catalog on Weil-McLain Smokeless, Long-Firing-Period Boilers; also booklet on "Grate Vairea," gladly mailed on request.

WEIL-McLAIN COMPANY

General Offices	Boiler Factory	Radiator Factory
Chicago, Illinois	Michigan City, Ind.	Erie, Pa.

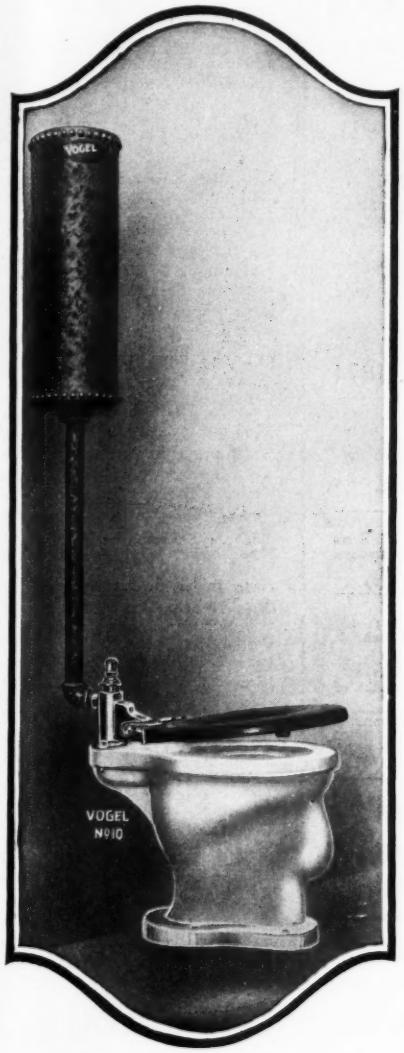
Fight fuel waste with

Weil-McLain

SCIENTIFIC COMBUSTION

BOILERS

SMOKELESS BOILERS with LONGER FIRING PERIODS



VOGEL *Number Ten Closet*

Let Vogel Guide You

It isn't difficult to find yourself completely lost in the forest of business obstacles.

But there is one easy way to get through it.

Standardize and specialize on **VOGEL** Products. You can sell the Number 10 Seat Action Closet, the Frost Proof Hydrant or the No. 1 Frost Proof Closet easily because they have a high enough standard of quality to overcome your many problems.

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Jos. A. Vogel Co.

Wilmington, Del. **St. Louis, Mo.**

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Three Heggie-Simplex Steel Heating Boilers, oil fired, installed in St. Mary's Seminary, Cleveland.

Economical with Oil

THE huge combustion chamber of Heggie-Simplex Boilers gives oil more room to burn. Their much larger direct heating surface and unrestricted circulation absorb the heat produced with maximum efficiency. Their rear-front-rear flue passage strips the gases of the remaining heat units.

Electrically welded of steel, Heggie-Simplex Boilers provide the crack-proof protection that is essential to automatic firing. Their bases, designed for easy installation of portable grates, make these boilers readily convertible to use with any fuel.

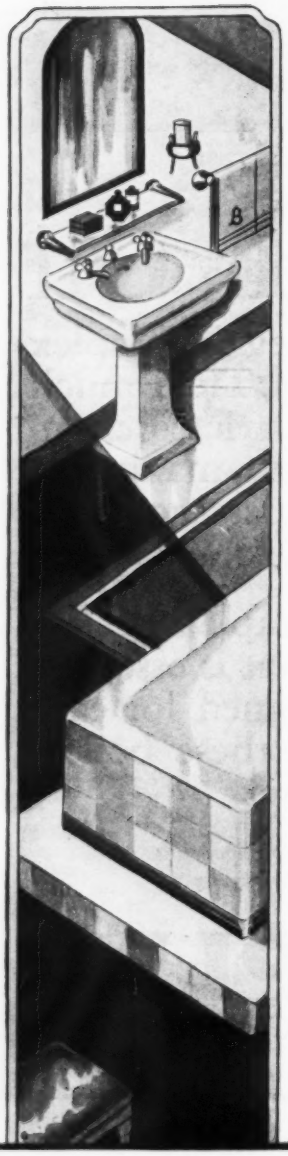
Heggie-Simplex Boiler Co., Joliet, Illinois. Representatives in principal cities — telephone and address listed under "Heggie-Simplex Boiler Company."

HEGGIE-SIMPLEX

ELECTRIC-WELDED STEEL HEATING BOILERS

Why modern women demand EASY-SET

Removable China Bathroom Fixtures



THEY are made of the finest quality china—as durable, beautiful and graceful as table china.

They will not craze nor tarnish, and there are no cracks nor crevices for dust and dirt to creep in and mar their beauty.

They will harmonize with any decorative scheme, and can be easily removed and replaced without marring the walls whenever refinishing or redecorating is necessary.

Besides the conventional white, they are obtainable in black and four beautiful color tints, to meet the modern vogue of color in the bathroom.

and most important of all!

They can be lifted from the wall and washed

J. H. BALMER CO.
259-267 Plane Street
Newark, N. J.

Set your expectations high!

WHEN announcement was made that this Company was entering the steel pipe field, it was natural for jobbers and users of pipe to anticipate that Bethlehem Steel Pipe would be a product of outstanding excellence.

These anticipations are being fully realized. Steel Pipe that thoroughly fulfills the Bethlehem tradition of quality is being manufactured in the new mills. Bethlehem Steel Pipe is made by the latest and most approved methods, from the most suitable grade of steel for the purpose that it is possible to produce.

This steel pipe will meet every test. It is in every way worthy to be marked "Bethlehem."

If you have never used Bethlehem Steel Pipe, it is suggested that it would be worth your while to become acquainted with it. Set your expectations high. You will find Bethlehem Steel Pipe exceptionally good in every way. You will find that it embodies the high quality that you are justified in expecting of any Bethlehem Product.

The most suitable steel for the purpose is used in making Bethlehem Steel Pipe.

The Bethlehem pipe mills are located at Maryland Plant, Sparrows Point, Md. Both rail and water transportation lines are available for shipments.

BETHLEHEM STEEL COMPANY

General Offices: Bethlehem, Pa.

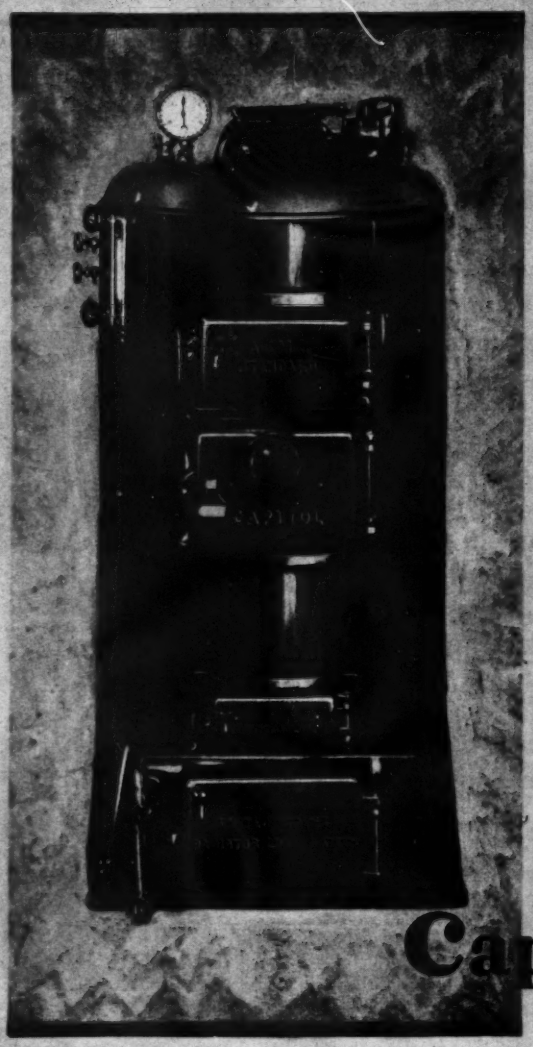
District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Detroit, Cincinnati, Chicago, St. Louis, San Francisco, Los Angeles, Seattle, Portland and Honolulu.

Bethlehem Steel Export Corporation, New York Sole Exporter of our Commercial Products

BETHLEHEM STEEL PIPE

THE SATURDAY EVENING POST

A handsome package of YEAR-'ROUND summer



By far, the finest, most efficient residence boiler of our thirty-eight years of progress now is realized in the Capitol Red Cap.

SO utterly new, different, advanced is the Capitol *Red Cap* that comparison with previous boilers is inadequate. Only the healthful warmth of a glorious summer's day can rival the cozy comfort it will bring into your home, every day, the long winter through.

In beauty, there is no duplicate for its staunch and trim round jacket that glistens in blue and red and nickel. As for insulation, its thick blanket of rock wool has no parallel in heat conservation. Frugality of fuel, ease of operation; every principle and point of design has been proved in thousands of actual installations.

Most important of all, your satisfaction is certified by the broadest and strongest written warranty in the industry, Capitol Guaranteed Heating*. The established heating contractor in your community will deliver this handsome package of year-'round summer to your home. Ask him, and write for a free copy of "A Modern House-Warming" which illustrates and describes the Capitol *Red Cap* and its worthy partners, Capitol Radiators.

*GUARANTEED HEATING

Your contractor receives a written guarantee on the heating capacity of every Capitol Boiler. No other heating equipment assures you satisfaction so definitely.

UNITED STATES RADIATOR CORPORATION

8 Factories and 31 Assembling Plants Serve the Country GENERAL OFFICES DETROIT, MICH. *For 38 years, builders of dependable heating equipment*

THE PACIFIC STEEL BOILER CORPORATION
Division of the United States Radiator Corporation, builds welded steel heating boilers for large installations—business buildings, factories, schools, hotels, and large apartments

Guaranteed Heating WITH

Capitol Boilers

AND RADIATORS

AGAIN, the Capitol *Red Cap* Round Boiler is advertised to the nation. The above page, in full color, will increase the public's approval of this masterpiece of residence boilers and of the heating contractor who installs it. This advertisement will have a total circulation of 5,728,966 in The Saturday Evening Post, November 10th, Collier's, November 24th, and (in black and white) National Geographic of November.

$49.50

for Utility Spray Painting Equipment

THIS outfit is indispensable for painting such objects as radiator tubes, heating plants, and pipes, which cannot be painted readily in a spraying booth, to match the rest of the job.

Weighs but 39 pounds. Designed to be attached to the nearest light socket. Take it anywhere and start to work. A few hours painting will pay for it.

Practically any paint material can be used, including spraying lacquer, brushing lacquer, oil paints, cold water paints, and metallic paints—such as bronze, gilt, etc.

The outfit employs all the principles used in higher-priced equipment and insures a smooth, even finish never before obtained with equipment at anywhere near this price.

We want to send you illustrated literature, giving you full description of the Kellogg Utility Paint Spraying Outfit. Use the coupon to get it. No obligation on your part.

KELLOGG MFG. CO.
121 Humboldt St. Rochester, N. Y.

KELLOGG COMPRESSORS

This Outfit consists of:

A real compressor (not a low pressure blower) with all necessary fittings. Operated by a ¼ horsepower motor.

Suction feed spray gun, giving excellent atomization without spattering. 15 feet of hose and 10 feet of electric extension cord.

Kellogg Mfg. Company
121 Humboldt St.
Rochester, N. Y.

Please send us complete information on the Kellogg Utility Paint Spraying Outfit. No obligation on our part.

Name.....

Street.....

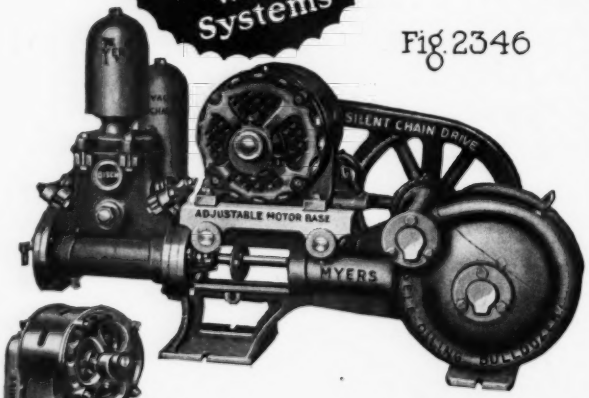
City..... *State*.....

Jobbers Name.....

Where is there another MONEY MAKING LINE of POWER PUMPS like the MYERS?

"When you think of WATER think of MYERS Pumps and Water Systems"

Fig. 2346



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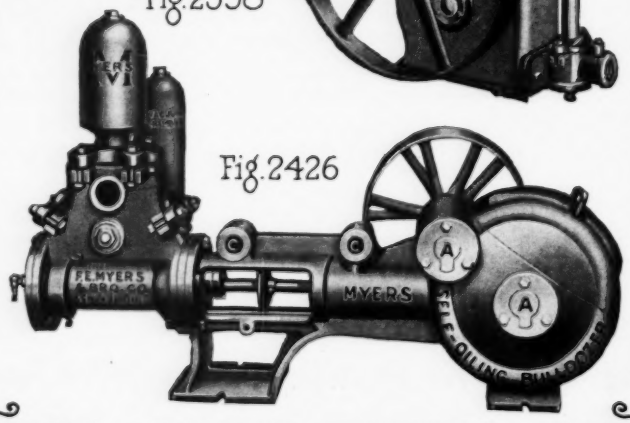

WHEN a customer drops in to see you about a power pump—when you drive ten or fifteen miles to call on a power pump prospect—there is satisfaction in having a complete line of power pumps like the MYERS to fortify your efforts and help put the sale across.

This is not only true when it comes to the mechanical qualities which mean much in the way of satisfaction afterwards but with the wide range of styles and sizes in which Myers Self-Oiling Power Pumps are now built still greater satisfaction occurs through recommendation and selection of equipment to meet individual requirements.

Knowing that dealers have problems of this kind to meet every day—realizing, too, that buyers are becoming more critical and pronounced in their demands, we have added new styles and wrought many improvements in old types which will enable dealers to further increase their sales activities and at the same time provide their customers with better power water facilities than they have ever enjoyed heretofore.

How can I build up my power pump business? Write or wire for catalog and information, and give the new and improved line of Myers Self-Oiling Power Pumps and Water Systems an opportunity to profitably answer this question for you.

Take Off Your Hat to The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

THE F. E. MYERS & BRO. CO.
ASHLAND, OHIO.
ASHLAND PUMP AND HAY TOOL WORKS

PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

SYLPHON SERVICE

Sylphon Service, Prompt, Dependable and Nation Wide, Through Strategically Located Territorial Representatives

Sylphon Service is always available. Our national organization of representatives in 39 cities in the United States, and 5 in foreign countries, are trained to render prompt and dependable service . . . . .

Every Sylphon instrument carries a guarantee of positive, safe and efficient operation, backed by the resources of the largest manufacturer of thermostatic instruments in the world . . . .

Correspondence relative to any Temperature or Pressure control problem welcomed Write Dept. K.

THE FULTON SYLPHON COMPANY
KNOXVILLE, TENNESSEE

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Newly Tailored in Mountain Ash Scarlet

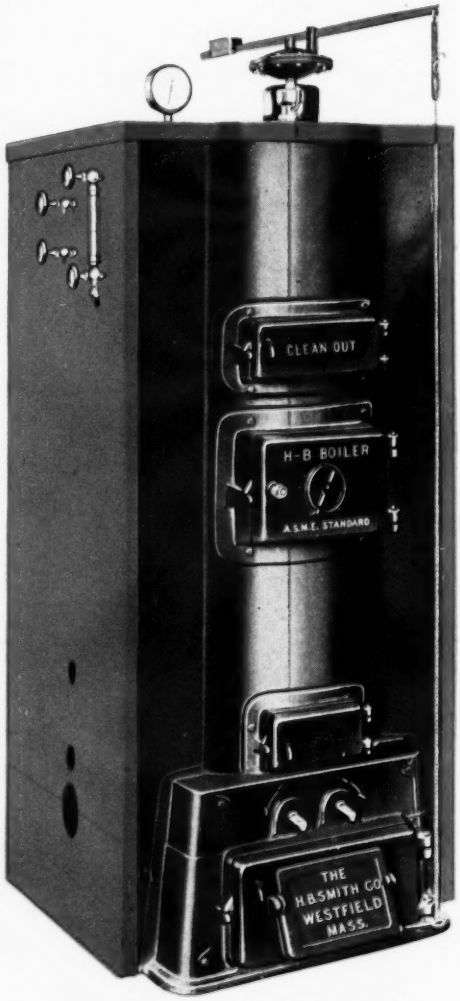
The H.B. BOILER acquires Modern Beauty of design & color

Cinderella was really just as charming when she sat alone in her old clothes by the fire. But as likely as not, the Prince would have passed her by, if her Fairy Godmother had not given her a lovely gown.

Just so, the H. B. Boiler was really just as efficient in its old dress. But now it has a handsome new suit of mountain ash scarlet, which makes it a thoroughly modern and colorful sales proposition, not likely to be overlooked.

In this day of modern selling when beauty of design and color take a leading part, this new tailoring has given the H. B. Boiler new sales value.

Write for complete information. Also for information on the H. B. Smith "144" new Full Surface Radiator; and on our new gasket which saves you time and money on installations of our boilers. The H. B. Smith Co., Dept. A-54, Westfield Mass.



The Boiler with the Swell Front

THE H·B·SMITH
BOILERS & RADIATORS
Used in fine homes and buildings since 1860

The H. B. Smith Boilers for steam, hot water and vapor heating; radiators; and hot water supply boilers; for every type and size of private, home, office building, factory and public building.

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Westfield, Massachusetts

THE CELEBRATED SKIP TOOTH DIE
(*Genuine Nye*)

NYE
Pipe Threading
OIL

It is only after years of experiment under conditions actually encountered in our own factory, we are offering Nye Pipe Threading Oil. This oil, specially compounded, is an excellent coolant, a good penetrant, and has the necessary "body" to form an efficient cushion for the die when in operation.

These qualities are very essential if clean, sharp and accurate threads are to be had. Many oils work fairly well on power threading where the die is flooded by a pump, but do not take care of hand threading because they do not cling all the way around the thread. We can positively say this trouble will never be experienced with our oil.

Nye Pipe Threading Oil may be ordered in cans from 1 to 15 gallons and in 30 or 50-gallon drums.

NYE OIL KIT

16-Gallon Standard Unit with lockable fill opening and steel gauge stick.

Let us solve your threading problems

Write for Information

A Letter from Harry G. Nye

Nov. 10, 1928.

To the Plumbers & Steamfitters
of the U. S. A.

Things are popping in Wall Street just now. Nothing like they do in State Street, of course, and not the same things. But the effect is sometimes the same. A broker would just as soon take you for a ride as a bootlegger.

Wall Street, I might explain, is where some fellow who doesn't own it sells you something you don't intend to take so you can sell it before you get it to some fellow who wants it worse than you do to sell to some fellow who wants it worse than he does.

Now, this is all right, and I am not one of those who call Wall Street speculators a lot of gamblers, because a lot of them are not, but only think they are. Some of them aren't gamblers any more than I am a golf-player.

The only thing I have against Wall Street, is that it borrows money to buy stocks at the same time that other people want to borrow money to set up steam-plants and put in plumbing. There isn't money enough in the country to keep a man's kids satisfied, let alone Wall Street.

The Federal Reserve Board thought it would discourage speculation by raising the rate of interest, and all it did was to make the local banker tell the local plumber that he didn't have a cent to loan him and then wire his New York correspondents and ask them how much they could use.

I am no Mellon. If anything, I am a squash. I probably am all wrong, but I'm darned sure I ain't. I am as positive of it as I am that Nye Tools are the best tools on earth, and work fastest and easiest and last longest. A man could afford to pay 100% interest for money to buy Nye-Tools with. They are the plumber's best investment.

Absolutely yours,

Harry G. Nye

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All rights reserved.

OTHERWISE KNOWN AS

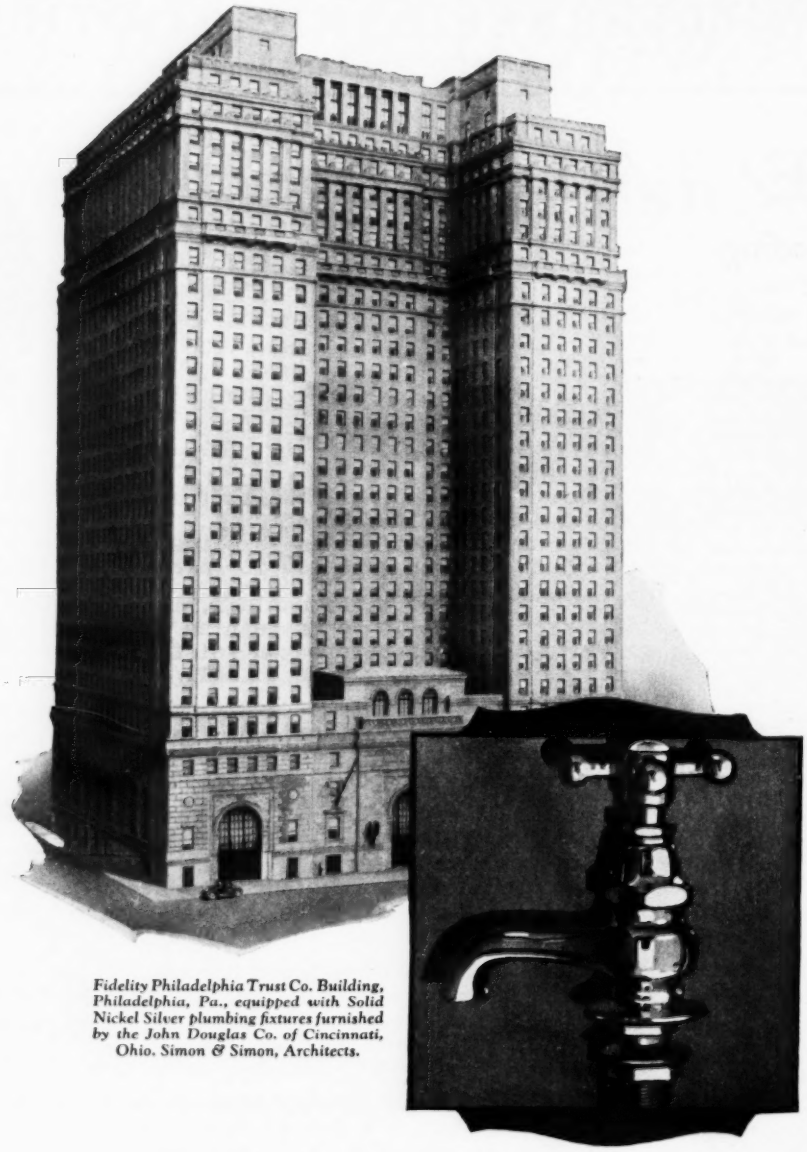
THE NYE TOOL & MACHINE WORKS

MANUFACTURERS OF HIGH GRADE PIPE TOOLS

4120-30 Fullerton Avenue Chicago, Illinois

THE CELEBRATED SKIP TOOTH DIE
(*Genuine Nye*)

MEETING ARCHITECTURAL STANDARDS OF QUALITY



Fidelity Philadelphia Trust Co. Building, Philadelphia, Pa., equipped with Solid Nickel Silver plumbing fixtures furnished by the John Douglas Co. of Cincinnati, Ohio. Simon & Simon, Architects.

SOLID NICKEL SILVER PLUMBING FIXTURES by DOUGLAS

Among the fabricators of Solid Nickel Silver equipment is the John Douglas Co. of Cincinnati, Ohio. This company is regularly producing plumbing fixtures which are pressure tight and have all the beauty, lustre and long-wearing qualities afforded by alloys of high Nickel content...Solid Nickel Silver offers advantages that impress architects and builders whose clients demand the best. The physical properties of Solid Nickel Silver—hardness, toughness and strength—resemble those of tough bronze. It combines the beautiful, lustrous color associated with Pure Nickel with the improved wear-resistance characteristic of high Nickel Alloys...When you use Solid Nickel Silver for quality plumbing, you use the most modern type equipment.

18% 22 Nickel SILVER

THE INTERNATIONAL NICKEL COMPANY (INC.), 67 WALL STREET, NEW YORK, N. Y.

Mention DOMESTIC ENGINEERING when writing advertisers.

"Domestic Engineering" feature stories on merchandising are true stories of actual experience of plumbing and heating contractors.

Between Ourselves

"This industry has got to become more cost conscious." —Professor Malcolm P. McNair of the Bureau of Business Research, Harvard Univ.

The pollution of streams is like damming them, the longer you refrain from starting the work, the more you waste. A stream suffering from pollution does not become better through neglect, but, on the contrary, becomes increasingly worse, making it a harder and more expensive job to clean up, the longer it is allowed to go on in its own way.

Your Editor

THE State of Connecticut is now faced with an enormous problem in cleaning up its streams, which have been allowed to become polluted through industrial wastes and other means. The pollution has gained such headway that millions of dollars are needed to withstand the expense of making them clean and safe for the inhabitants of that state. In this issue, an article called, "The Menace of Stream Pollution," is based on the pollution of Connecticut streams. On the front cover is an artistic photograph of an oyster fleet, representing one of the industries which have suffered a great deal on account of the pollution of Connecticut waters.

MERCHANDISING is not necessarily a proposition for the metropolitan areas. True, when manufacturers think in terms of disposing of their products, they turn to metropolitan markets as a means of concentrating their merchandising efforts. On the other hand, however, the retailer has to concentrate his merchandising efforts on the community of which he is a part, and the merchant in the smaller city really has better opportunities in some ways than his large city contemporary. In smaller cities, the master plumber is more of an individual, and hence his merchandising program is noted by the newspapers and public, where in the large city it might be overlooked. In this issue the Sales Manager discusses "Selling in the Smaller City."

ALTHOUGH hot water circulation is not customarily installed in residences, except in those of the larger and more expensive types, the convenience of being able to secure hot water immediately on opening the hot water faucet is a real one, especially where the water is metered. If metered, a great deal of water is wasted under usual conditions, because the cooled water in the pipes must be drawn off before it is hot enough for use. In this issue is an article called, "Hot Water Circulation Systems for Small Homes," by Harold L. Alt. It tells how these systems should be installed, the advantages of having them, and the installation difficulties to look out for in getting the desired results.

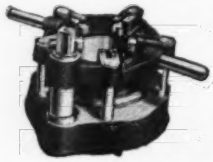
FROM Edmonton, Alta., Can., comes the following compliment for "Domestic Engineering": "There is seldom an issue in which I do not find something I can put to immediate practical use in my day's work."

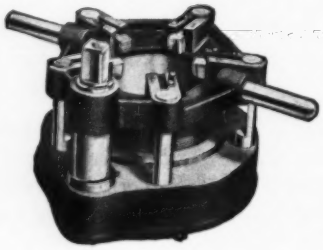
AN INNOVATION in the program for the convention of the National Association of Master Plumbers, to be held next June in Buffalo, N. Y., is an effort on the part of the convention committee to make attendance at the convention desirable from a standpoint of concrete value to every master plumber in the country. To accomplish this, a large room is to be set aside for merchandising instruction. The convention sessions are to close at 2:30 p.m., and the delegates can repair to this room at any time to get merchandising advice from salesmen, advertising men and merchandising counsellors. The master plumber wants to know how to sell. With the proper instruction, he will sell!

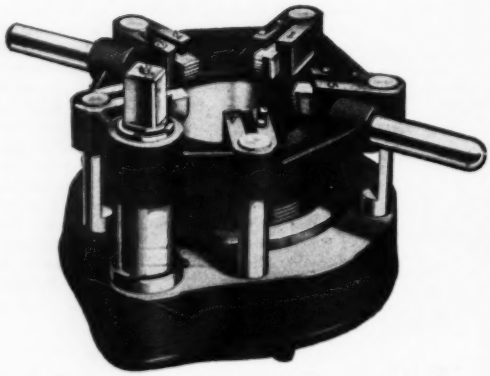
THE discussion by the Schoolmaster in this week's issue is called "A Plumber's Nightmare." It aptly phrases the only terminology which describes the terrible conditions in the plumbing ordinances of the two Atlantic Coast cities from which the drawing in Fig. 1 is taken. Several teeth in this ordinance are entirely contrary to practice and health measures. The problem was presented to see what changes would be suggested by subscribers. This article is the Schoolmaster's comments on these criticisms.

WHILE the football season is still on, and we haven't even begun seriously to think about Thanksgiving, now is the time to begin planning for Christmas merchandising campaigns. With this in view, the merchandising section in the next issue will be on the subject of Christmas displays and merchandising programs. Several examples of Christmas campaigns of the past will be included in the section.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe







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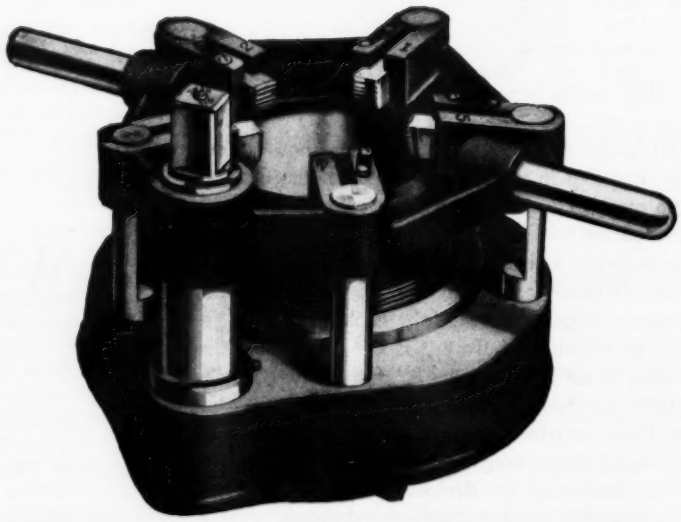

DOMESTIC ENGINEERING

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The Plumbing and Heating Weekly

Chicago, Illinois
November 10, 1928

OBSERVATIONS

Market Data—A Powerful Sales Tool

It has always seemed to us that selling is an industry's best protection against trade abuses within, and competition without, its ranks. It will offset to some extent even the effects of adverse business conditions.

Consider, for instance, the fact that although almost every business man in a given community may be complaining about poor business, there will be those who are prospering. Most often it will be found that these latter have sound selling policies. Constructive business men agree that the effects of price-cutting competition do not disturb their selling efforts. And on all sides there is a well grounded opinion that industries must undertake selling campaigns in order to help individuals within their ranks meet the competition of other industries.

Mere aggressiveness will not, of course, guarantee the success of a selling campaign. There must be preparation. American business has developed a powerful sales tool in the last few years in the market survey. There is every reason to believe that the plumbing and heating industry is on the threshold of a new era of development, not merely because merchandising is daily gaining momentum, but because more of the executives of the industry are learning how to use this powerful help—adequate market information.

Market Surveys

The enthusiasm with which the market data gathered by the Philadelphia Plumbing and Heating Development League were greeted at the recent Advertising and Sales Managers conference, indicates a receptive state of mind for such information. Sensing such a receptive attitude, and realizing the need for market information, "Domestic Engineering" some months ago had completed its market survey of the industry itself, for the use of the manufacturer. For the contractor, it was first to disseminate information concerning the great market for remodeling and it has carried that information to a number of meetings of organizations within the industry.

Add to these surveys the type of effort represented by the analysis made by the Bureau of Business Research of Harvard University for the wholesalers in the Central States, and the tendency toward a more scientific control of marketing and management methods becomes clear.

As manufacturers, wholesalers and retailers come to use these data more and more, there will be developed a firm but flexible selling policy reaching throughout the industry. The old wasteful methods of broadcast selling will go into the discard for the more scientific selective method. The industry need not be concerned over fluctuations in any phase of its work because the market data will keep it informed of the most profitable direction in which to expend its efforts. If new building falls off, there will be remodeling work; and when population catches up with housing facilities, the demand for new buildings will reflect itself in the accumulating market information.

Selective Selling

Figures such as those developed by our survey of the industry will make for more economical selling. Since only 35 per cent of the plumbing and heating contractors do the bulk of the work, manufacturers and wholesalers will concentrate their efforts on the productive group within the industry.

The retailer is, likewise, being instructed in the process of determining his best market and merchandising to it. Since he is the point of contact with the consumer, he must understand the community which he serves. He, too, is learning that rather than attempting broadcast selling, it is most profitable to approach those whose incomes and standards of living offer reasonable expectation of profitable returns from sales efforts.

Lessons of selective selling are being absorbed, therefore, by the three branches of the industry with some promise of an approach to a solution of distribution problems on constructive grounds. It seems reasonable to believe that comprehensive market information will do more to iron out difficulties within the trade than irritable criticism of each branch by the others.

The basic concern of the industry—profitable service—will thus be realized, to the extent that the industry applies the market information available to its sales problems. As far as the consumer is concerned, we shall enjoy our share of his dollar in competition with other industries. And within the industry the selective process will bring home, to those who have sought business by short-sighted methods, the fact that their methods must be revamped if they are to share in the industry's profitable progress.

What a Welder Should Know About Metals

ABILITY to recognize commercial metals and alloys is obviously an essential part of a welder's fund of practical information, for welding procedure varies with the different metals. Metal products in infinite variety are brought to the welding shop. Occasionally the customer may think he knows what the material is, but nearly always he does not. It is up to the welder to identify the metal in order that he may apply the proper welding methods.

Experienced welders have but little difficulty, but they do find it hard to explain just how it is done. This is quite natural, for it is based on personal reactions that can be expressed only inadequately in words. The most that can be done is to indicate in a general way the factors involved in the simple tests used in the shop. The welder can then practice these tests with known materials until the characteristic reactions of each metal become part of his general knowledge.

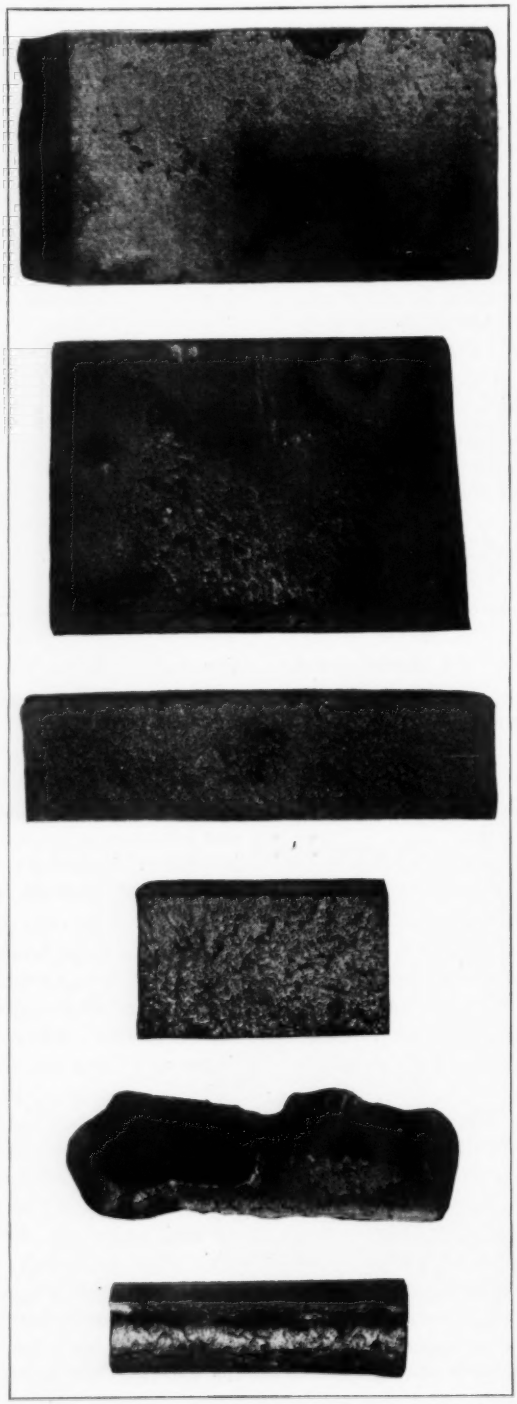
Of course, the mechanic who does welding in a plumbing and heating shop will know the use of the parts to be welded, and consequently will know of what metals they are made. He will know that certain machine parts are always cast iron, others are usually steel forgings, and so on. These preliminary clews may then be substantiated by the regular tests.

These tests are as follows:

1. Appearance. This includes such general features as color and surface appearance.
2. Fracture. A fractured surface will frequently furnish all the information required.
3. Grinding wheel tests. When held against a grinding wheel, the various forms of iron and steel produce characteristic sparks.
4. Behavior under blowpipes. In the oxy-acetylene blowpipe itself, the welder has a splendid tool for identifying the various metals. Almost invariably when a dispute arises the welder will say "Just let me put the blowpipe on it and I'll tell you just what it is."

Since ability can be developed only through personal experience, welders desiring to train themselves along this line should apply each of the above tests to pieces of known composition, observing carefully just what takes place.

The following outline will serve as a guide, but it must be supplemented by practice in order to be of real benefit.



From top to bottom: Fig. 1. Cast iron surface.—Fig. 2. Cast steel surface.—Fig. 3. Cast iron surface.—Fig. 4. Cast steel surface. —Fig. 5. Malleable iron fracture. Original piece 1⅛ inches wide.—Fig. 6. Wrought iron, nicked and bent, showing fibrous structure. Original sample 1½ inches wide

Gray Cast Iron

Uses.—Gray iron is used where low cost per pound is more important than strength, where weight and stiffness are needed, and not very great strength, or where an intricate shape is desired.

Appearance.—Dull gray surface giving evidence of having been formed in sand mold (except, of course, where it has been ground or machined).

Fracture.—(Nick a corner all around with a chisel or hack saw and hit a sharp blow.) Uniform small dark gray crystals; breaks short when fractured; a light chip with a chisel breaks off as it is made.

Grinding wheel.—Dull red sparks that follow straight line.

Blowpipe.—Molten metal very fluid and watery. When blowpipe flame is raised, the depression in the surface of the molten puddle disappears instantly. A heavy, tough film forms on surface as it melts. Molten puddle takes time to solidify; no sparks.

Malleable Iron

Uses.—Used where a material with properties intermediate between cast iron and steel will suffice; castings for railroad cars, farm implements, pipe fittings and the cheaper grades of tools.

Appearance.—Very much like cast iron but generally free from sand, and lighter in color.

Fracture. — Characteristic; central portion dark gray with a bright steel-like band at surface. The appearance at the fracture has been aptly described as a "picture frame;" much tougher than cast iron when of good quality; does not break short when nicked.

Grinding wheel.—Outer bright layer gives bright sparks

Fig. 8.—Surface of hot rolled steel bar is noticeably rough and scaly. Original sample is 6⅛ inches long

like steel; sparks quickly change to dull red as interior is reached; sparks from interior section very much like those of cast iron.

Blowpipe.—Molten metal boils under blowpipe flame; after withdrawing flame, surface will be found full of blowholes; melted part very hard and brittle with white fracture (it has been changed to white, or chilled iron by the melting). Outside sparks, center does not. Malleable iron should be bronze-welded, not welded with cast iron.

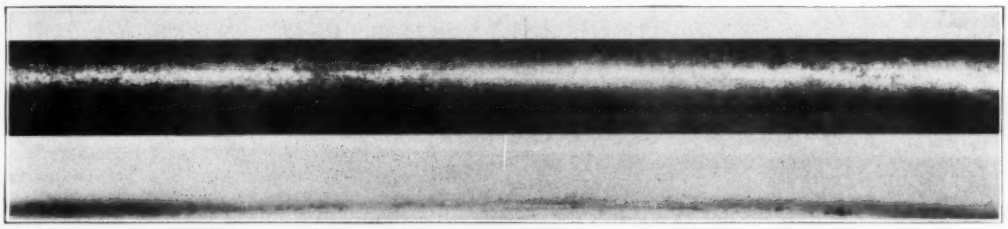


Fig. 9.—Cold rolled steel has relatively smooth surface free from scale. Original sample is 6⅛ inches long

Cast Steel

Uses.—Used where high strength is desired, as in high pressure valves and fittings. As manganese steel is nearly always used in the form of castings, it is also considered here. Its high wear-resistance is its most valuable property.

Appearance.—Surface brighter than cast or malleable iron; sometimes with small bubble-like depressions.

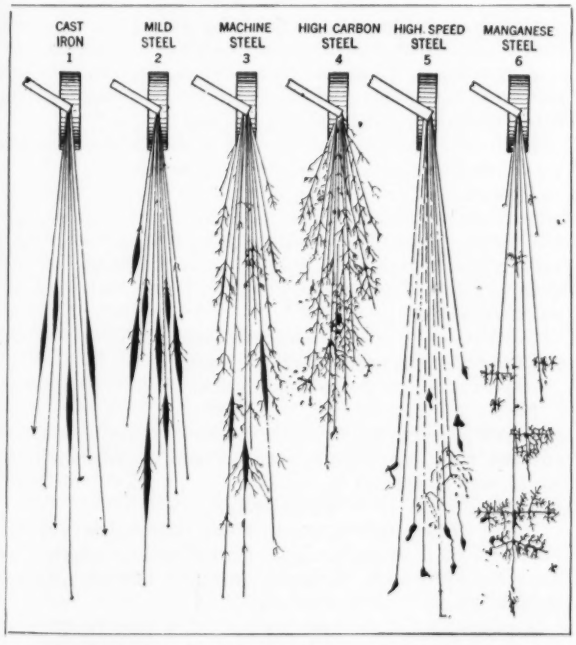


Fig. 7.—Grinding wheel test quickly distinguishes iron and steel alloys

Fracture.—Bright crystalline; tough when nicked and does not break short; tougher than malleable iron; chips with chisel curl up more than malleable iron. Manganese steel, however, is so tough that it can not be cut with a chisel, nor can it be machined.

Grinding wheel.—Sparks are much brighter than cast iron. Manganese steel gives characteristic sparks that explode, throwing off brilliant sparklers at right angles to the original path of the spark.

Blowpipe.—Sparks when melted; solidifies quickly.

Steel Forgings

Appearance.—Smooth surface; where surface of drop forgings has not been finished, there will be evidence of the fin resulting from the metal squeezing out between the two forging dies. This fin is ordinarily removed by the trimming dies, but enough of the sheared surface remains for identification. All forgings are covered with reddish brown or black scale, unless they have been purposely cleaned.

Fracture.—Varies from bright crystalline to silky gray. Chips are tough, and when the specimen is nicked it is harder to break than cast steel, and has a finer grain. Forgings may be of low or high carbon steel or alloy steel. Tool steel is harder and more brittle than plate steel or other low carbon material. Fracture usually whiter and finer grained; can be hardened by heating to good red and quenching in water; low carbon steel, wrought iron, and steel castings can not be usefully hardened.

Grinding wheel.—Typical steel sparks. High carbon steel (machinery and tool steel) sparks much brighter and whiter than low carbon steel.

Blowpipe.—Sparks when melted, the sparks increasing in number and brilliance as carbon content becomes greater.

Wrought Iron

Appearance.—Same as rolled low carbon steel.

Fracture.—Wrought iron has a fibrous structure due to threads of slag. As a result it can be split in the direction that the fibers run. The metal is soft and easily cut with a chisel. When bent, it is quite ductile. When nicked and bent acts like rolled steel. Can not be hardened by quenching from bright red heat.

Grinding wheel.—Same as low carbon steel.

Blowpipe.—Melts quietly without sparking. Has a

peculiar slag coating with white lines in it; oily or greasy in appearance.

Mild or Low Carbon Steel

Appearance.—Appearance of steels depends upon method of preparation rather than composition.

Cast.—Relatively rough surface except where machined.

Rolled.—Fine surface lines running in one direction.

Forged.—Can usually be recognized on account of its shape, hammer marks or fin.

Fracture.—Bright crystalline. Tough when chipped.

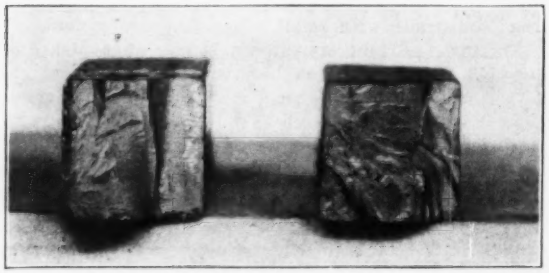


Fig. 10.—High carbon steel gives a very fine grained silky structure

Grinding wheel.—Sparks in long streaks brighter than cast iron and shows tendency to burst.

Blowpipe.—Sparks when melted; solidifies quickly—almost instantly.

High Carbon Steel

Appearance.—Same generally as other steels. These steels are more expensive, and work is usually done on them to give a smoother surface finish.

Fracture.—Usually very fine grained fracture, whiter than low carbon. Tool steel is harder and more brittle

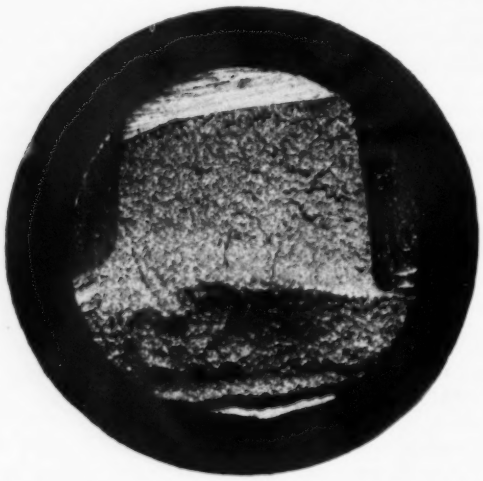


Fig. 11.—Bright, crystalline fracture is characteristic of low-carbon steel. Original sample 1 inch in diameter

than plate steel or other low carbon material. High carbon steel can be hardened by heating to good red and quenching in water. Low carbon steel, wrought iron, and steel castings can not be hardened.

Grinding wheel.—Brilliant "sparkers."

Blowpipe.—Molten metal is redder than low carbon steel, and the melting surface has a cellular appearance. Sparks more freely and sparks are whiter than mild steel.

Alloy Steels

Uses.—Alloy steels are frequently recognized by the use to which they are subjected. They have greater strength and durability than other steels. A given strength in a part is secured with less weight of material than when other steels are used. Their economical use depends upon proper heat treatment which is destroyed by the welding at the region of the joint. It is well to refuse work on alloy steel automotive parts like axles and steering gears. Manganese steel is a special alloy steel that is always used in the cast condition and is consequently considered under cast steel.

Appearance.—Same as other drop forged steels. Much alloy steel is machined all over.

Fracture.—Generally very close grained; at times the fracture might be said to have a velvety appearance.

Grinding wheel.—The various alloy steels produce characteristic sparks both in color and shape. With practice, many varieties of alloy steel can be recognized.

Blowpipe.—Depends on the nature of the alloy; steels containing a considerable quantity of chromium produce a greenish colored slag on the weld when cold.

Aluminum

Appearance.—Characteristic white color; bright when polished, dull when oxidized; light weight.

Rolled and sheet aluminum; material is pure metal. Castings are alloys of aluminum with other metals, usually zinc, copper or silicon.

Fracture.—Castings; bright crystalline. Rolled; smooth and bright.

Blowpipe.—Does not show red before melting; holds its shape until almost molten, then collapses suddenly. Heavy film of white oxide forms on molten surface.

Copper

Uses.—Used mostly in form of wire, bar, plate and pipe.

Appearance.—Characteristic red color when polished; oxidizes to various shades of green.

Fracture.—Smooth, free from crystalline appearance.

Blowpipe.—On account of good heat-conducting properties, a larger flame is required to produce fusion of copper specimen than would be needed for a steel piece of the same size. Melts suddenly and solidifies instantly. Copper alloys containing small amounts of other materials melt more easily and solidify slower than pure copper.

Brasses and Bronzes

Uses.—Made into rolled products, like pipe, bars and sheet. Also castings, used rough or machined extensively.

Appearance.—Color when polished varies with composition from red almost like copper, to yellow brass; oxidizes to various shades of green and brown.

Fracture.—Ranges from smooth to crystalline, depending on composition and method of preparation.

Blowpipe.—True brasses contain zinc, which gives off white fumes when the brass is melted. Bronzes contain tin. Even a slight amount of tin makes the alloy flow very freely, like water. Due to a small amount of zinc usually present, bronzes may fume slightly, but never as much as brass.

Aluminum Bronzes

Uses.—Used almost always as castings.

Appearance.—When polished, darker yellow than brass.

Fracture.—Smooth.

Blowpipe.—Extremely hard to weld; surface quickly covered with heavy scum which tends to mix with the metal, and is difficult to remove.

Monel Metal

Uses.—Used either in plate, or bar form, or as castings. Its corrosion-resisting properties make it well adapted for chemical equipment, restaurant fittings, cooking utensils, turbine blades, valves and seats.

Appearance.—Color like nickel, when new, dulls with age.

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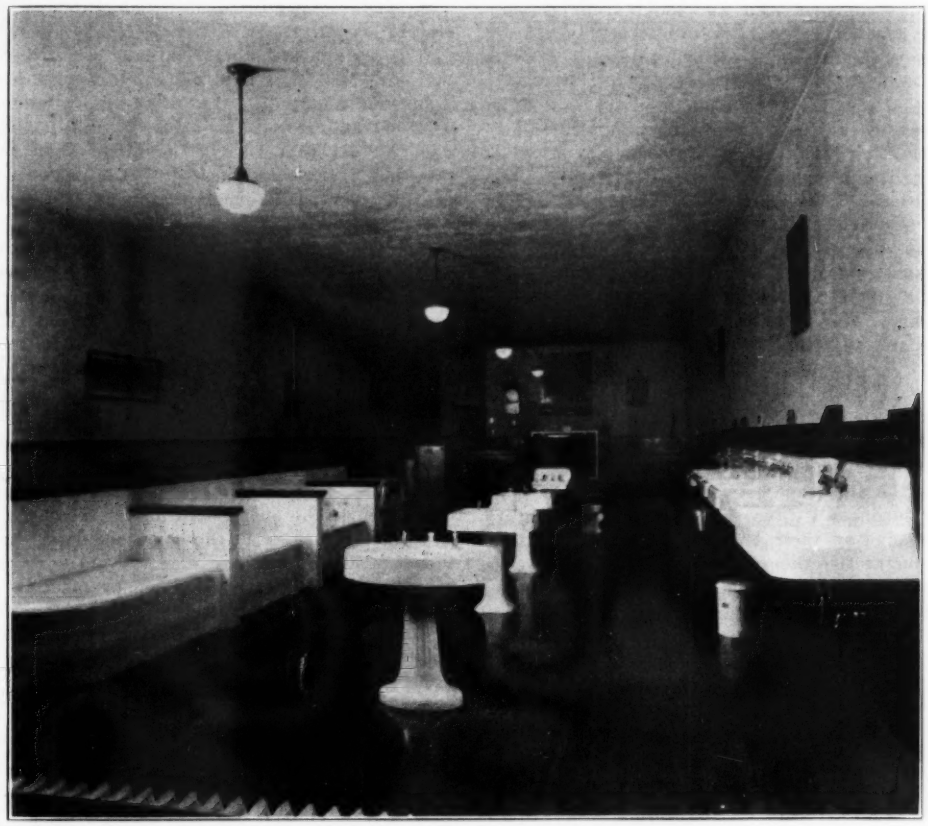


A very complete display in a city of 10,000 population

Selling *in the* Smaller City

The Sales Manager discourses on selling outside the metropolitan areas

WHEN business men begin to talk about markets, it is very often true that they picture their markets as the big centers of population. There is no quarrel, of course, with that viewpoint. Merchandise is sold where people are congregated. But it is not sufficient to stop there in surveying the market for a product which ought to go into every home in the country. The parts of the plumbing and heating system have no limitation as to market. Wherever there is a home there is need for those appliances which make an efficient plumbing or heating system.

Which means that in studying possible markets for a product which may be marketed through any one of several classes of retailers, the sales manager must be sure that his distribution—his retailer in the smaller city—will be as efficient under his local conditions as is his retailer in the larger city. Because from the smaller city, if his retail outlets are efficient, the sales manager may hope to secure a volume of business not to be treated lightly. It is worth his while to study those markets.

THE SMALL TOWN MARKET

HERE are some figures which were given in a little booklet published by "Domestic Engineering" a number of months back, after it had made an investigation of the possibilities of the small town or city market. In the United States there are 20,000,000 people living in towns with under 2,500 population. In towns whose population ranges from 2,500 to 10,000 there are 9,000,000 more, or a total of 29,000,000 people living in these smaller cities of the country.

In nine states of the Middle West there were 2,645 cities and towns with populations under 10,000 and in these cities and towns there was running water under pressure in every home and some provisions at least for sewage. There is money in those smaller cities, too, one representative section reporting 74% of the families as having two checking accounts and 65% having two savings accounts. It must also be remembered that these small towns and cities are centers of influence for the more than thirty million people who live on our farms.

This is not a market which can be neglected—particularly by a sales manager who was looking for possible outlets for a product. Could we expect as much from the small city plumbing and heating contractor as from the man in the large city?

We had to be pretty clear about what we wanted, of course. I mean by that, we weren't going to deceive ourselves by looking for absolute perfection, the lack of which seems to give so many men the idea that a trade is open to general criticism. We wanted a workable number of efficient outlets. We knew that in any industry there would be some which would not be up to standard.

Here is what we learned about one typical plumbing contractor in a city which has, I believe, by now crossed the 10,000 mark. Huron, S. D., was listed at something between nine and ten thousand population by the 1920 census. And George C. Hunt is the man in question.

A CONSTRUCTIVE WORKER

I REMEMBER once reading Franklin's definition of the difference between men. The principal thing he found which marked the difference between men was that "some minded their business." Give that a Twentieth Century application—"minding their business" meaning in these days giving constructive thought and study to their chosen work, and I believe you have a kind of touchstone by which men in business may be judged.

Sometimes retailers in the smaller cities are unwilling to embark on a career of aggressive merchandising. They think that it's all right for the "big city, but it won't take here." Not so men like Mr. Hunt, serving the plumbing needs of many a small community in this country. There is, in fact, many a big city plumbing store which doesn't have as really complete a display of merchandise as he has. There are, in the pictures reproduced herewith, some twenty-seven pieces of plumbing ware on display.

It is an unusual store. In fact, when he first opened the store Mr. Hunt took delight in asking his customers a question about it. "One of the daily reminders of the value of the store," he said, "is the people who call. They all say that I have the nicest shop for plumbing that they have ever witnessed." "Did you ever see another one like it?" is his question, and he says that he always got a negative reply.

There is a point in this minding of one's own business where we have to stop looking in the direction of our competitors. If you were to ask Mr. Hunt, "How have you met competition?" his answer would be—"I haven't."

"That may sound funny," he says, "but it is the truth, because I personally believe that to recognize competition is to acknowledge failure. By that I mean that when you start out to meet competition you naturally meet their price and when you let others dictate what price you should charge then you are a failure."

Don't let me give you the idea that he is belittling the other men in the business in his city. "There are at least five other men here in the same business," he says, "and they are all mighty fine men. I am sure they are not taking any work away from me by meeting my prices." As often as not it's the bogey of bidding that someone else is going to try to beat you on price—and when all the men bidding on a job feel that way, someone is going to profit—and it won't be the bidders.

Mr. Hunt is one of the many men who didn't open their first place of business on main streets, with a blare of trumpets. He opened his first place of business in

(Continued on Page 48)

Another view of Mr. Hunt's floor display

Boiler Efficiency

By A. M. DANIELS

"GOOD MORNING, Mr. Heating Contractor."

"Good morning to you, Mr. Sales Engineer, I'm surely glad you dropped in on me this morning. Last fall I bought a boiler from one of your competitors and installed it on a certain job. Ever since cold weather set in I've had the life pestered out of me by the owner with complaints about using so much fuel and having to shovel coal into the 'beast' fast enough to rival the activities of a bootlegger. The fellow who sold me the boiler said it was the most efficient boiler built and that I could stack my reputation on efficiency by using it."

"Did you ask him what he meant by boiler efficiency, or did you just swallow that word like a baby does soothing syrup and then cry for more. Why, man alive, don't you know that the word efficiency is the champion catchword of modern times, that it is shoveled out by many self-acclaimed salesmen much as a load of coal is dumped from a truck, that it is used to attract and beguile the unthinking and unwary, that it is an easy way to open the purse strings because it is always sung to the tune of 'Saving here and saving there leaves you more for Bonnie fair?' I can't think that you would swallow that word without reservation, and I'm going to leave a few thoughts with you on boiler efficiency and when I get through, if you think that I have been passing out to you anything but sound, logical and technical facts, the lunch is on me. What do you say?"

"Let's go," smilingly responded the contractor.

All right, now the first thing I want to get over to you is that in this old world nothing in nature stands still—everything is changing constantly. The ocean levels, and the position of the sun and stars, which we are always inclined to regard as fixed, are different today from what they were yesterday. We might establish today a certain measurement or a certain location and it may be absolutely accurate for the conditions under which it was established, but we would be in error if we claimed such as the true measurement or true location unless we qualified the statement by saying that the measurement was made or the location was established at a certain definite time under certain definite conditions. The same

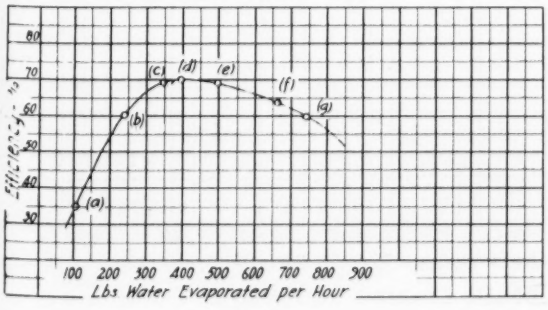


Fig. 2

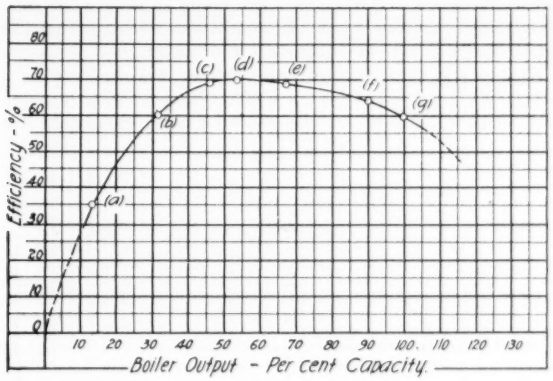


Fig. 1

conditions would have to exist in order exactly to duplicate the measurement.

All quantities in engineering work are variables, yet we deal with them so frequently that we are likely to make the mistake of thinking of them as fixed quantities when in reality they are likely to vary over considerably wide limits of fluctuation. We often speak of a chimney as having a certain draft and it is quite generally understood that a stack with height of 100 feet will produce a draft intensity of 3/10 of an inch. Yet that chimney may have been in use for years and may never have developed exactly that draft intensity, or that intensity may exist one minute and change the next. Conditions must be just right for the draft gauge to register any definite value for draft.

For a certain chimney and definite condition of the fire and barometric pressure, a certain draft intensity will be produced—change any one of the conditions and immediately the draft intensity changes.

BOILER EFFICIENCY NOT A FIXED QUANTITY

SO IT is with boiler efficiency. It is not a fixed quantity and the term cannot be loosely applied. It is indeed a decidedly variable quantity and yet it is common to hear an engineer remark that a boiler of a certain manufacture or of a certain design will develop an efficiency of 60, 70 or 80 per cent and thus give the impression that there is something inherent in the boiler that will cause it to operate at the specified efficiency for practically any rate of running and under any conditions.

Now pull up your chair and follow me closely.

Let us assume that there is burned, in a boiler, in one hour, 20 lb. of a certain coal, containing 12,500 B.t.u. per lb. The total heat energy available from that fuel will be $20 \times 12{,}500 = 250{,}000$ B.t.u. Of course, you understand that heat energy is measured and expressed as B.t.u., meaning British thermal unit, and one unit is approximately the quantity of heat required to raise the temperature of 1 lb. of water through 1 deg. F.

If a test of that boiler were made, while burning this coal at a uniform rate, and it was found that, during the hour, there was delivered to the water in the boiler 140,000 B.t.u., then $140{,}000 \div 250{,}000 = 0.58$, which is the decimal part of unity representing the heat output of the boiler divided by the heat input. It is the ratio of heat energy imparted to heat energy available in the fuel fired. If, now, this decimal 0.58 be multiplied by 100, the ratio is expressed as a percentage and the efficiency of the boiler as shown by this particular test would be stated as 58 per cent.

In like manner, a similar figure may be obtained for

any boiler when arrangements are made to secure the necessary readings and when the conditions under which the boiler operates can be controlled and maintained constant.

So you see that to say that a boiler will operate at a stated efficiency as part of a heating system is to assume that all conditions at all times, under such operation, are

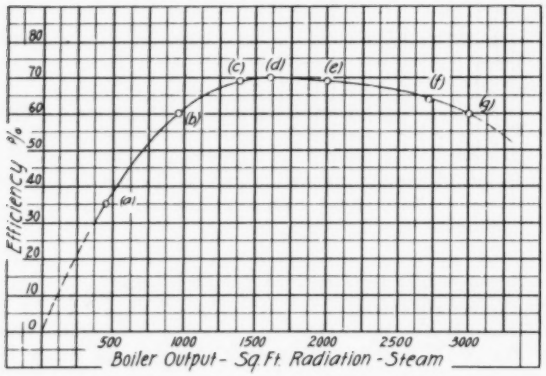


Fig. 3

identical with those which occurred under the test conditions when the stated value for efficiency was established.

Too much emphasis, therefore, cannot be placed upon the fact that the efficiency of a boiler can be stated only for a definite load and under specific conditions of operation—note that. A boiler operating under a fluctuating load will have a fluctuating efficiency, and variations, other than the load, such as changes in climatic conditions, change in feed-water temperature, and so on, will again change the output-input ratio and hence change the boiler efficiency.

BOILER EFFICIENCY CURVES

EVERY boiler has what we call an "efficiency curve." Such curves for different boilers will vary, but their general form always is the same. Now I'm going to show you how we develop a boiler efficiency curve.

First, we conduct a series of boiler tests, beginning with a test at a very low rate of fuel consumption and then increase the combustion rate for each subsequent test. During each of this series of tests, the amount of coal actually consumed is carefully determined, the quantity of water evaporated is accurately measured, draft and pressure readings are taken at stated intervals or a continuous recording record is made, flue gas temperatures are taken and all other necessary performance data secured, thus making the test reasonably accurate.

Next, these data are "worked up" and the boiler efficiency for each test is calculated. The test which showed the greatest total amount of water evaporated may then be considered as representing maximum boiler capacity and the quantity of water evaporated may be taken as representing 100 per cent, to which the quantities evaporated during the other tests may be referred for the purpose of establishing the per cent of maximum capacity at which the boiler operated during the respective tests. For example, if the highest evaporation was 742 lb. of water during one hour of one of the tests (Test No. 7) and 240 lb. were evaporated in the same time during another test (Test No. 2), then the boiler during this latter test was operating at 32 per cent of maximum capacity—

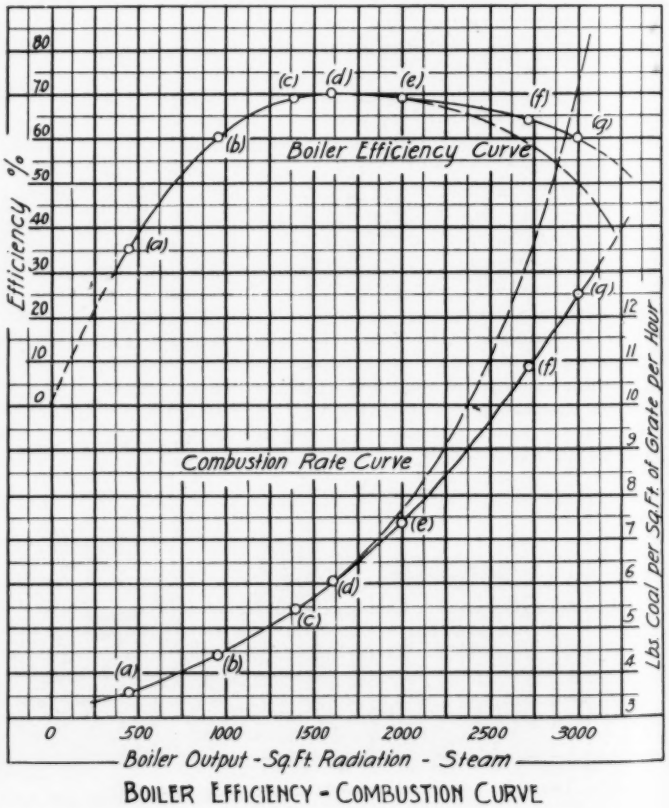
$$\frac{240}{742}\times 100 = 32 \text{ per cent}$$

Table 1

Test No.	Point Designation on Curve Sheet	Water Evaporated, Per Hr., Lb.	Water Evaporated Per Cent of Maximum Capacity	Boiler Efficiency, Per Cent
(1)		(2)	(3)	(4)
1	(a)	104	14	35
2	(b)	240	32	60
3	(c)	346	46	69
4	(d)	395	53	70
5	(e)	495	67	69
6	(f)	670	90	64
7	(g)	742	100	60

Here, see Table 1 above. This table is a tabulation of some of the "worked up" data from seven tests that were made on one boiler. And here, see Fig. 1. This is a piece of cross-section paper on which I shall construct a boiler efficiency curve for this boiler as determined from these data of Table 1.

On the left of the sheet I'll mark figures representing efficiency in per cent for use of the values in column (4) of Table 1; along the bottom, the figures represent per cent of boiler capacity for use of the values in column (3) of Table 1. Plotting the values by locating point (a) on the 14 per cent line of bottom scale and on the 35 per cent line of the side scale, and then each of the other points in a similar manner, and then drawing a smooth curve through all the points, we have a boiler efficiency curve for this particular boiler. It should be noted that the boiler will operate at highest efficiency when developing about 53 per cent of its maximum capacity.



BOILER EFFICIENCY - COMBUSTION CURVE

Fig. 4

While, for Fig. 1, I used per cent of boiler capacity in constructing the curve, this is not the only basis on which the curve might have been developed. A similar curve may be made by using the values from column (2) of Table 1, showing pounds of water evaporated per hour. Such a curve is shown in Fig. 2. It is apparent that, while this boiler is capable of evaporating 742 lb. of water per hour, when doing so, its efficiency is 10 per cent lower than when its evaporation is about 395 lb. per hour. Compare Tests 4 and 7 of Table 1. And let me point out, in this connection, that its actual loss in efficiency is even greater than 10 per cent. In this case it is 14.3 per cent: (10÷70×100)=14.3 per cent.

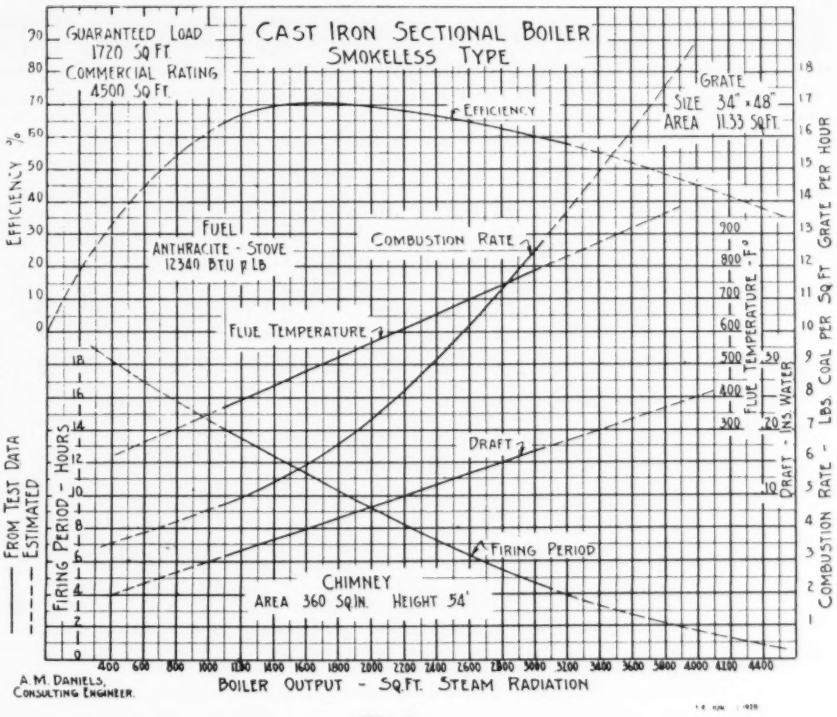


Fig. 5

BOILER EFFICIENCY BASED ON SQUARE FEET OF RADIATION

PERHAPS this curve, see Fig. 3, will impress you still further as to the importance of boiler efficiency. In this case, the scale on the left represents per cent boiler efficiency the same as in Figs. 1 and 2. The scale at bottom is given in square feet of equivalent direct radiation at the boiler nozzles. The values for points (a) to (g) inclusive in Fig. 3 are obtained as follows:

Every pound of water, when changed from water at a temperature of 212 degrees F. into steam having the same temperature, absorbs approximately 970.4 B.t.u. So, in the case of Test 1, Table 1, the evaporation of 104 lb. of water per hour absorbed, 104 (lb.)×970.4 (B.t.u.)=101,000 B.t.u. See Table 2, column (3).

Table 2

Test No.	Point Designation on Curve Sheet	Water Evaporated, Per Hr., Lb.	B.t.u. in Water Evaporated	Equivalent Sq. Ft. of Direct Steam Radiation
(1)		(2)	(3)	(4)
1	(a)	104	101,000	420
2	(b)	240	233,000	970
3	(c)	346	335,000	1,400
4	(d)	395	384,000	1,600
5	(e)	495	480,000	2,000
6	(f)	670	648,000	2,700
7	(g)	742	720,000	3,000

Since a square foot of steam radiation emits approximately 240 B.t.u. per hour per sq. ft. of direct radiation, then 101,000 B.t.u.÷240 (B.t.u.)=420, represents the equivalent square feet of direct radiation that the evaporation of 104 lb. of water per hour will supply, see column (4) Table 2.

Reference to Fig. 3 thus shows that, while this particular boiler is capable of supplying over 3,000 square feet of radiation, yet it will operate far more efficiently when developing the equivalent of about 1,600 square feet as shown by high point (d) of efficiency curve of Fig. 3.

Now, there is still a lot more for us to understand about this boiler efficiency curve, but I want to digress just a few moments and point out that there are other factors which are directly related to this subject of boiler efficiency. I have purposely omitted reference to them in showing you these Figs. 1, 2 and 3, in order not to confuse you with too many data at one time. I see that you have grasped the points I have tried to "get over" to you, so now I'm going a little further.

COMBUSTION RATE AN IMPORTANT FACTOR

WHEN I walked into your place this morning, you mentioned that your customer had complained about his fuel bill, and so I'm next going to show you how combustion rate and boiler efficiency are related.

During all the tests conducted with this boiler, the total fuel consumed was carefully measured and the combustion rate established. Combustion rate, you understand, means the number of pounds of fuel consumed per hour per square foot of grate surface. These rates of consumption for each of the tests are given in column (4) of Table 3.

Table 3

Test No.	Total Fuel Burned, Lb.	Length of Test, Hours	Combustion Rate, Lb. Coal Per Sq. Ft. Grate Per Hour	Flue Temp., F. Deg.	Draft Intensity Ins. of Water	Firing Period Hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	164	4	3.65	230	.....	18.0
2	203	4	4.45	345	.....	15.0
3	243	4	5.40	440	0.025	12.4
4	252	4	6.0	480	0.050	11.2
5	332	4	7.35	565	0.080	9.2
6	475	4	10.50	710	0.135	6.2
7	565	4	12.50	785	0.165	4.7

Now I'll lay another piece of cross-section paper over this of Fig. 3 and plot a corresponding combustion rate curve as I did for the boiler efficiency curve, by marking figures (see Fig. 4) on the right to represent pounds of coal burned per hour per square foot of grate surface. Point (a) on this curve will be directly under point (a) on the boiler efficiency curve and on a horizontal line corresponding to 3.65 on the combustion rate scale. We will

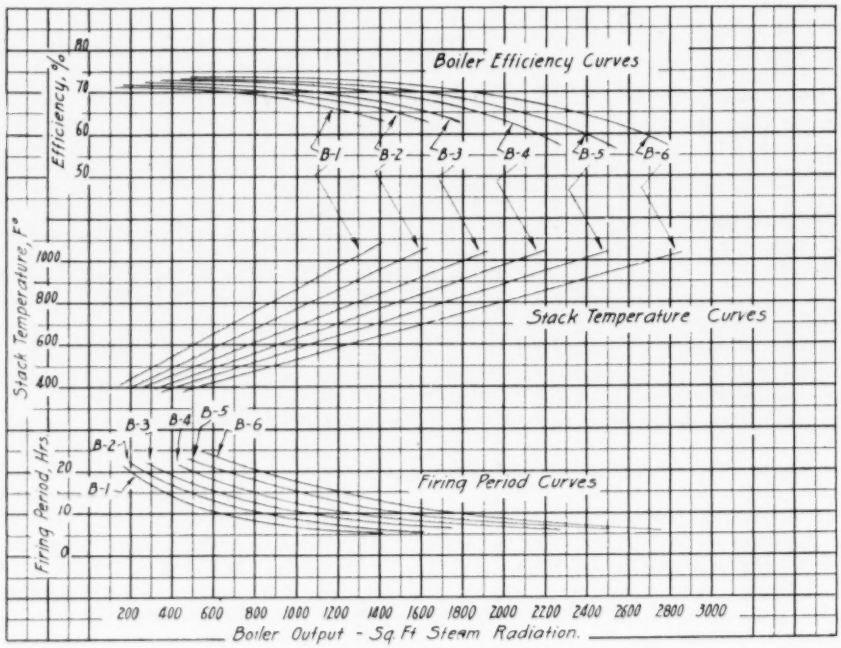
next locate each of the other points, (b) to (g). There, we have all of them located. Now to draw a curve through them and we'll have our combustion rate curve and boiler efficiency curve, which show us the relation of these factors to one another. Let me call your attention to the abrupt manner in which this curve rises, which indicates a rapid increase in fuel consumption as the boiler capacity increases.

If this boiler is operating at its highest efficiency (note point (d) on boiler efficiency curve), by following down vertically until we meet the combustion rate curve and then reading to the right on the combustion rate scale, we note that about 6.0 lb. of coal will be consumed per square foot of grate, which, multiplied by the grate area (11.33 square feet) for this boiler, will indicate a consumption of 68 lb. of coal per hour. And, for these conditions, the equivalent radiation which may be handled is about 1,600 square feet, read on the bottom scale of Fig. 4.

The boiler, however, is capable of supplying considerably more radiation as shown by the test data. Let us see what the effect will be if it is called upon to supply, say, 3,000 square feet of equivalent radiation, see point (g). By the boiler efficiency curve, it is noted that its operating efficiency will be lowered from 70 to 60 per cent, compare points (d) and (g). Following down to the combustion rate curve and reading to the right on the scale, it is seen that for this condition, about 12.5 lb. of coal must be burned per square foot of grate or (11.33 square feet grate area) 142 lb. must be consumed every hour.

Comparing the increased consumption with the additional radiation supplied, it is noted that to supply 1.87 of the amount of radiation, it was necessary to burn 2.10 times as much fuel. For this particular case, the difference is not as great as in many instances since this boiler has an efficiency curve which falls gradually from its high point. It is not unusual to experience results with boilers whose efficiency curve takes the form that I have indicated by the broken line of Fig. 4, and you can see how, under this condition, the fuel consumption becomes excessive when the boiler is forced. Naturally, the combustion rate curve will have a greater abruptness, as indicated by the broken line extending upward from it. It is likely that the boiler you installed for your complaining client had an efficiency curve and combustion rate that followed more closely the broken lines of Fig. 4 curves than they approached the solid lines representing the performance of this boiler I am here to supply. So you see that it makes quite a difference over an entire heating season as to whether the boiler is operated the greater part of its time at a high or at a low point on its efficiency curve. I'll bring this out a little clearer for you by a consideration of total heating demands, when I drop in next week.

But I want to show you these other important test data before I go. Here in column (5), Table 3, are the flue gas temperatures, as measured for each respective test, while column (6) shows the draft gauge reading, and in column (7) we have calculated the length of the firing period for operation at the respective combustion rates.



BOILER TEST CURVES

Fig. 6

This sheet, Fig. 5, contains all these data, as you can note from the names on the different curves. This sheet enables me to explain almost anything you want to know about this particular boiler. The form of each of the curves tells a story and, when considered with relation to one another, boiler selection becomes a scientific rather than a guess problem.

Let us assume that we will select this boiler to supply approximately 1,600 square feet of equivalent radiation and see what this sheet of Fig. 5 shows. We note first that it is a good selection, since the "hump" on the efficiency curve occurs at this radiation value and hence assures operation at highest boiler efficiency. We follow down to the combustion rate curve and read a rate of 6.0 lb. and know from its relation to the efficiency curve that this will assure economical use of the fuel. We pause a moment to observe that the combustion rate curve rises

(Continued on Page 52)

Oyster dredges hauling in the catch

Menace *of* Stream Pollution

Connecticut must spend millions to curb pollution of streams

CITIES and towns in Connecticut are faced with the necessity of spending millions of dollars within the next five years to curb the increasing pollution of waters within the state. Already more than fifteen municipalities have initiated plans for the correction of the present methods of sewage disposal which have played havoc with the health, recreational and industrial values of rivers, lakes and beaches throughout the state. But the financial problem has become so gigantic that long delays must be faced before the situation is brought fully under control.

This state of affairs was disclosed by the state department of health and state water commission. Commissioner Stanley H. Osborn, state commissioner of health, said that the magnitude of the financial aspects of a correction of water impurities was so great that over a period of five years the best that could be hoped for was that pollution would be held in check. The ultimate elimination of the contaminating conditions, he said, was still far in the future.

Need Legislative Help

General Sanford H. Wadhams, director of the state water commission, reports that the most difficult obstacle in the part of that commission's program of eliminating pollution is the inability of the individual municipalities to underwrite necessary improvements without securing the consent of the legislature for an increase in their bonded indebtedness.

Yet, according to both Dr. Osborn and General Wadhams, the delay in abolishing the use of bodies of water within the state as direct outlets for domestic and industrial sewage will entail great loss to property values and create continuing menaces to the health of communities.

Health Menace of Polluted Streams

The appalling toll taken by the unchecked pollution of Connecticut's waters may be indicated by a few of the consequences as told by these representatives of the state agencies whose task it is to solve the problem. Dr. Osborn relates that scarcely a river in the state is now available for recreational purposes. General Wadhams points to the absolute extinction of the oyster industry in Connecticut. Both warn of the tremendous loss in property values along the beaches of Long Island sound if existing conditions are not remedied. General Wadhams calls attention to the fact that the undeveloped

supply of potable water in the state is rapidly diminishing, so that sooner or later Connecticut must face the necessity of utilizing some of its larger bodies of water such as the Connecticut and Housatonic rivers, through an expensive system of filtration.

The first steps toward curbing pollution were taken by the state department of health in 1878. The fifty years that have passed since the elimination of pollution became a definite part of that agency's program have witnessed a race between the department's efforts to check the menace and the increase of causes that create it. The growth of cities and towns along the waterways, the development of industries and the increase in population have multiplied the causes faster than means for combatting the menace could be devised or adopted. It has not been because the state has been idle that pollution has steadily spread across the state, but rather, in spite of the unceasing efforts of the department of health and the more recently organized water commission.

The "R" months—the months when discriminating diners call for oysters in whatever appetizing form appeals to them—are in full swing. Yet there is a menace to the oyster beds, in the pollution of streams. Once, off the coast of Connecticut, the bivalve was to be found in quantities. Today, because of stream pollution, those oyster beds are ruined, and perhaps worse things are in store unless effective control of stream pollution is set up.

Sanitary Engineering Deals with Pollution Problems

The department of health has a special unit known as the bureau of sanitary engineering which dealt with problems of pollution. In 1925 by a special act of the legislature the state water commission was created. The relation between the state department of health and the state water commission cannot be easily explained. Both co-operate in the task of ridding waters of impurities. It seems, however, that the water commission carefully refrains from encroaching upon any of the health aspects of the problem, if indeed, it be possible to deal with pollution in any way without considering questions of community health. General Wadhams points out that the relation of pollution to health is but one of the aspects of the problem. Pollution also kills fish, or it ruins property values along the contaminated stretch of water, or it disfigures the landscape. These problems may be dealt with by the water commission.

State Has Needed Power

The water commission under chapter 143 of the public acts of 1925 is given the power to cite any municipal or private corporation to appear at a hearing to determine whether a given body of water is being polluted. The commission or its employes may enter any premises at any time in the performance of its duties to discover and eliminate pollution. Section nine of the act prohibits the creation of any new source of pollution without the permission of the water commission.

The department of health's jurisdiction over questions of pollution is created by statute. Section 2385 of chapter 126 of the general statutes, revision of 1918 states, "The state department of health shall have general oversight of all inland and tidal waters, including streams, lakes and ponds used as sources of water supply, and all springs, streams and water courses tributary thereto; and said department is empowered to investigate and ascertain as far as practicable all facts in relation to the pollution of streams and natural waters of this state by artificial causes to determine the sanitary and economic effects of such pollution, may enter upon lands, buildings and premises, as may be necessary for its investigations, may institute and conduct needful experiments pertaining thereto, and may summon witnesses, administer oaths and hear evidence relating to such matters. Said department shall annually make a written report to the governor of its operations under this section."

Chapter 131 of the general statutes deals specifically with the powers of the department of health in controlling pollution of water and ice. Chapter 132 gives the department the power to investigate the discharge of sewage into waters of the state. "Waters of the state" is defined to include "that portion of the Atlantic ocean and its estuaries and Long Island sound and its estuaries within the state, and all springs, ponds, streams, lakes, rivers, wells and bodies of surface or underground water, whether natural or artificial, within the boundaries of this state or subject to its jurisdiction."

The act creating the water commission deals largely with the subject matter of Chapter 132. But the water commission act makes no reference to the concomitant powers previously given to the state department of health. The two arms of state activity, however, have for the past two years been working together. The bureau of sanitary engineering of the health department is constantly overlapping the water commission in its work. The water commission orders the installation of the sewage disposal system; the department of health approves the installation. The enforcement of all pertinent statutory provisions is thus assured.

Both the state department of health and the water commission possess powers to compel individual towns or private corporations to observe their orders. The policy of each agency, however, has been to persuade rather than to compel. It is a comparatively simple task to ascertain the source of pollution, but to convince a given community that it must immediately make provisions to spend thousands of dollars annually requires time, tact and education. One town hesitates to underwrite the cost of a sewage disposal plant when after its own refuse is properly disposed of, the town a mile higher up the stream will continue its unrestricted pollution. It is the job of the state department to assure such towns that the burden will ultimately rest equally upon all communities.

Pollution of Long Island Sound

The pollution of Long Island sound creates unique problems. In many parts of the sound pollution is worst along the most expensively developed waterfronts. To give full publicity to the conditions at specific beaches would immediately impair the value of property in those places. Various tactics must be used. The state department of health secured quick action without open agitation in one city on the sound by ignoring the public beaches and closing a private beach used exclusively by a country club which had among its members many of the leaders of the city government.

Twofold Problem

The question of eliminating pollution of waters divides itself into problems of disposing of domestic sewage and problems of controlling industrial waste. Concerning domestic sewage, the solution is clearly available. Instead

(Continued on Page 47)

Hot Water Circulation Systems for Small Home

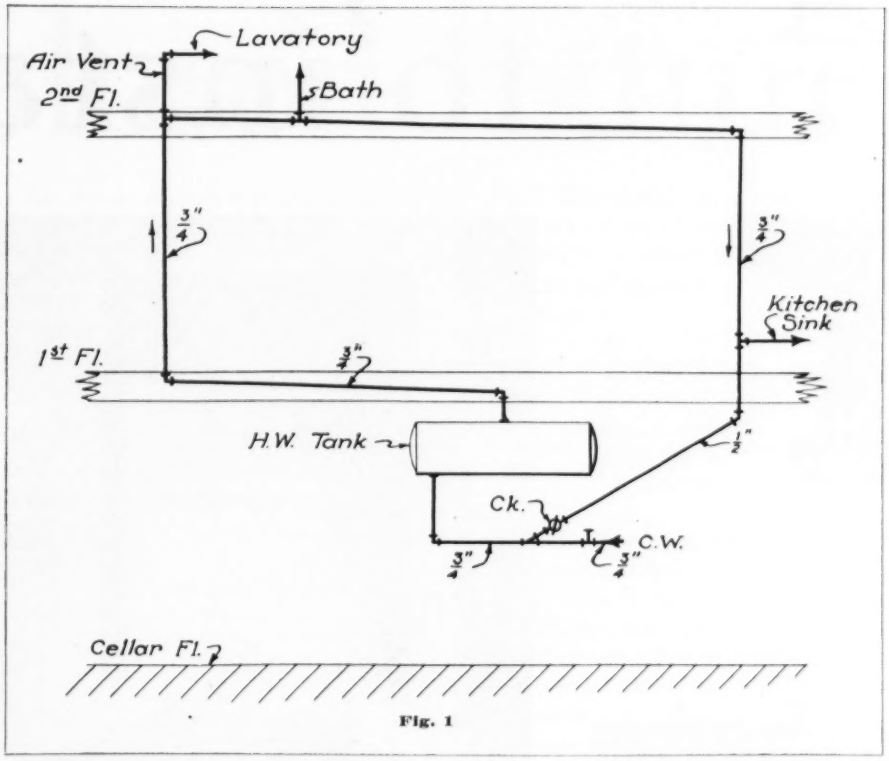


Fig. 1

By HAROLD L. ALT

ALTHOUGH hot water circulation is not customarily installed in residences except in those of the larger and more expensive type, the convenience of being able to secure hot water immediately on opening any hot water faucet is a real one especially where the water service is metered.

In the ordinary residence the hot water lines usually are carried directly from the hot water heater and "dead ended." That is, they terminate at the faucet outlet. When hot water is being used more or less continuously these lines become filled with hot water which cools slightly for the short time it stands in the piping but which is drawn off and replaced by more hot water from the heater before the water has become too cool.

If, however, the hot water is not being used quite constantly—and it usually is not so used in a residence—then the hot water stands in the line so long that it loses most of its heat and becomes chilled. As a result, every time a hot water faucet is opened, all the chilled water in the line between the faucet and the hot water heater must be drawn out through the faucet before hot water can be obtained.

And even then, the first hot water from the tank which enters the cool pipe becomes cooled by it and this cooled water must also be run off until the pipe line (both water and pipe) are thoroughly hot. Then, and not until then, will hot water be delivered to the faucet where the user is patiently waiting.

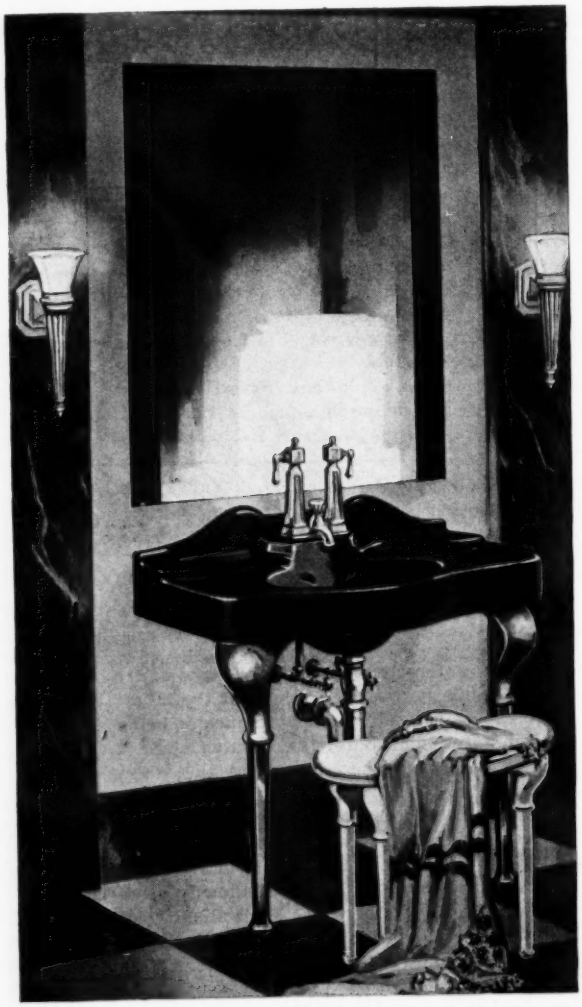
The Advantage of Continuous Circulation

Now all this means a waste of water, waste of time and sometimes a good deal of impatience. And it can all be overcome in a very simple manner. The running back of a ½-inch circulation line from the extreme end of the hot water line and a careful grading of both lines will result in a continuous circulation of water through the piping system where a hot water storage tank is in use.

Fig. 1 illustrates a very simple installation of this character involving only a kitchen and one bathroom. It will be noted that the hot water supply is first carried up to the bathroom and then back to the kitchen. From the end of the line at the kitchen sink a ½-inch return is run back to the tank with a ½-inch check valve at the point where it joins the cold water line supplying the tank.

The purpose of the check valve is to prevent cold water being drawn into the return and up to the kitchen faucet when this faucet is open. At the same time, the tendency to circulate is not great with only one-story-height of riser and the check used cannot be one offering anything much in the way of resistance because, if it does, the circulation will be hindered if not altogether stopped. If the ordinary check is used it should be installed on a 45-degree angle so that the flapper will hang vertically

Must a plumber to install



"Standard"
PLUMBING FIXTURES

be an artist colored fixtures?

The vogue for color places a great responsibility upon you, the plumber.

Bathroom ***ensembles*** in soft pink or dainty orchid—in rich green or sparkling blue—these can be a delightful harmony of well-matched colors, or they can be a distressing riot of discordant tints.

The finest baths to be enduring in beauty and convenience ought to be in Acid-Resisting Enamel. The lavatory to compare favorably with the bath may be of either Acid-Resisting Enamel, or of Genuine Vitreous China. The water closet will be of Genuine Vitreous China.

This means that with these pieces in one room your customers will have fixtures made of entirely different materials, and by dissimilar processes, which must nevertheless be truly harmonious in color value.

How is a plumber to be sure of this? Must he be an artist and study color values, in order to install colored fixtures? No. He needs simply to realize that no installation of colored fixtures can be entirely satisfactory unless ***all*** the fixtures—both vitreous china and enamel—are ordered from one manufacturer.

"Standard" has had nearly a quarter century of experience in the manufacture of both Vitreous China and enameled plumbing fixtures.

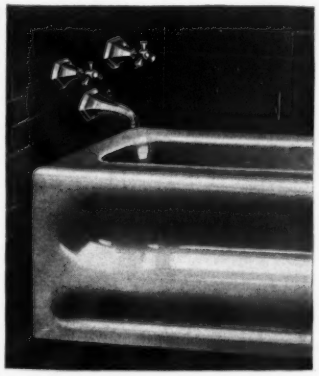
And "Standard" is now putting this quarter century of experience to excellent use in determining to a nicety the processes in production which will secure a most satisfactory color harmony.

What a problem you would have on your hands if you undertook to secure a bath, a lavatory and a water closet all from different sources—and expect the color, in delicate tints or even the deeper richer tones, to match!

But the plumber who installs a "Standard" bathroom in color knows when he takes the order that there will be no guess or gamble. He knows that in the "Standard" color line is a wider selection of distinctive tints and tones than his customer will find elsewhere. And he knows, too, that the fittings will be correct —whether they be in Gold, Chromard, nickel or in attractive colored china which harmonizes with the color of the fixtures.

Naturally, you will want to safeguard yourself from any "kick-backs" in selling colored fixtures. And you will be quick to appreciate the sales advantage in a ***full line*** of ***distinctive*** colors.

It is with "Standard" products that you can expect both of these—and can furnish complete satisfaction in colored fixtures.



Standard Sanitary Mfg. Co.
PITTSBURGH

"Standard"
PLUMBING FIXTURES

but there are also special checks obtainable in which the flapper is hung on an angle of about 60 degrees or is made of aluminum. In such cases the checks may be installed horizontally, and if the flappers are free to swing without sticking there will be very little resistance offered to the flow of water through the check.

In Fig. 2 a more elaborate system is shown consisting of the kitchen, two bathrooms and a laundry in the cellar. Here the hot water is carried up through the kitchen to one bathroom, then across to the other bathroom and from there back to the laundry and hot water heater.

Air venting is then taken care of by taking fixture connections off the top of the loop and allowing the air which collects in the pipe to rise into the fixture branch and ultimately find its way out through the faucets.

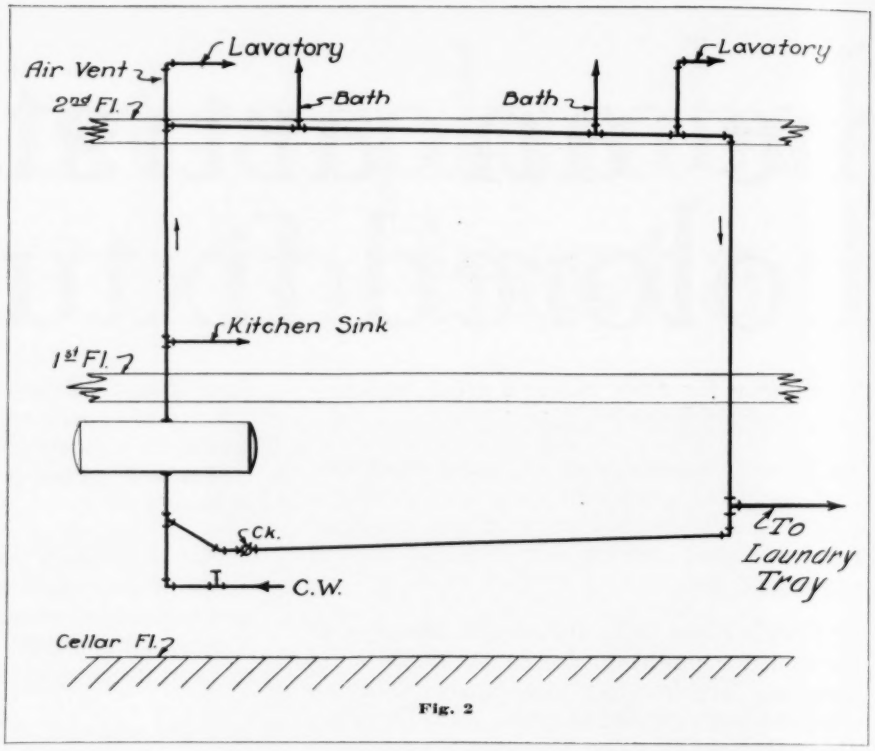


Fig. 2

Locating the Air Vents

The air vent must always be attached to the highest part of the circulation line so as to relieve the air which collects at such points. It does not matter which end of the loop is made high so long as all pipes grade up toward this point and if proper air relief is installed.

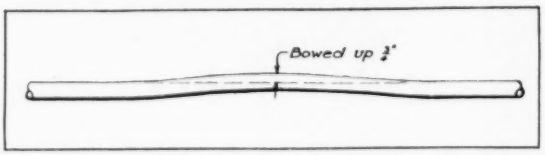


Fig. 3

In grading lines for air relief it should not be forgotten that a very small rise in a graded line will cause sufficient collection of air in the top of the rise to block the entire pipe if the pipe size is small (say ¾ in.) but in a larger size of pipe the same amount of pocket would occasion little if any trouble. This is illustrated in Fig. 3 where a graded line is shown as bowed up ¾ inch in the middle.

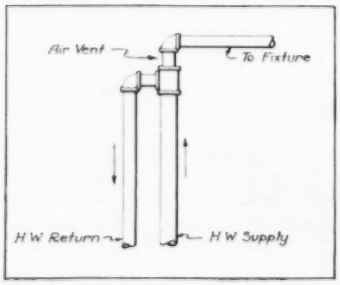


Fig. 4

If this pocket collects air to the full amount of the rise (¾ inch) then with a ¾-inch pipe the entire line will be air bound, but if the pipe is 2 inches in size, only ¾ inch from the top of the pipe may be filled with air **and there will be 1¼ inches of water beneath** the air, so that, while circulation would not be 100 per cent, it might not be retarded sufficiently to be noticeable.

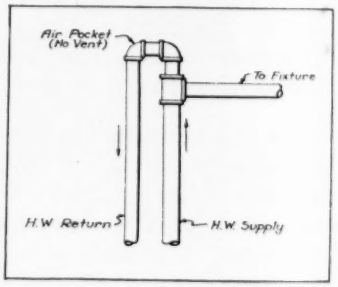


Fig. 5

In connecting to fixtures, the closer the circulation line is run to the fixture the more quickly hot water will be available when the faucet is opened. One of the closest connections possible is shown in Fig. 4, the circulation in this case being carried to a point immediately below the tee for the fixture. It is very important that the circulation connection should not be made above this tee as a con-

(Continued on Page 61)

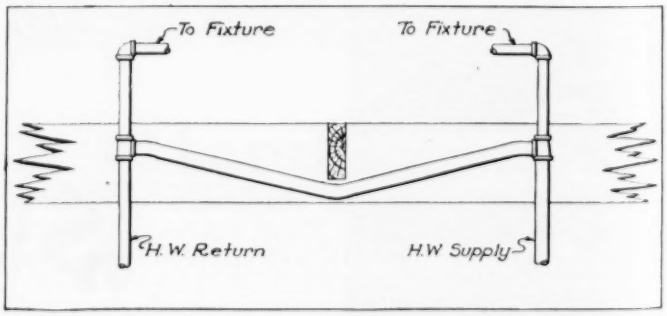


Fig. 6

IN-AIRID

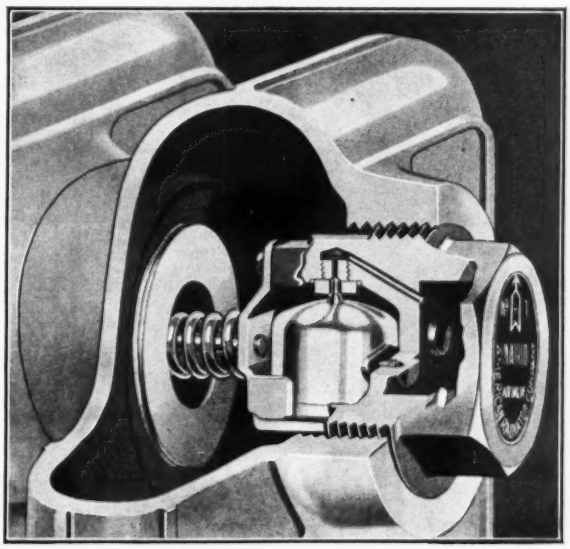
The Invisible AIR VALVE

The talk of the Industry

THE new IN-AIRID air valve recently introduced has met with widespread favor among the heating trade. Everywhere the new valve is proclaimed as a great step forward for it not only effects more complete radiator venting but makes possible the extremely desirable feature of having the valve entirely concealed within the radiator.

As you know, there is a tendency for steam to short circuit through the top nipple connections of new water type radiation, and close the air valve before all the air has been driven from the central part of the radiator. This trapped air greatly reduces the heat output.

The IN-AIRID prevents short circuiting, for, as the illustration shows, it has a special design with a baffle disc which completely blocks off the opening to the last section thus forcing the steam to travel down the next to the last section and up the last before it can come in contact with the valve float and close it.



IN-AIRID No. 2 VACUUM VALVE

The IN-AIRID No. 1 is for one pipe steam systems. The IN-AIRID No. 2 vacuum valve is for "below atmosphere" jobs. The No. 2 has all the venting qualities of the No. 1, plus the vacuum seal with hand lapped monel disc and seat.

Here are some of the advantages the new IN-AIRID presents:

Prevents short circuiting—assures complete venting of all the air—makes all sections hot.

Easily installed—Inexpensive

Entirely invisible, thereby improving the appearance of the radiator.

Dry venting—IN-AIRID is in the driest part of the radiator, yet, should water reach it the float closes instantly.

Cannot "water log"—no siphon necessary, because there is no shell to hold water.

Cannot be stolen or turned upside down—preventing operation.

Order a trial dozen IN-AIRIDS today. You will want to install them on all of your one pipe steam jobs after you have seen one operate.

AIRID AIR VALVE No. 500

AIRID No. 500

IN-AIRIDS can only be installed on new water type radiation, but for old steam type that has nipple connections only at the bottom, the famous Airid No. 500 is the best valve to sell.

In your locality there are many steam type radiators equipped with old, worn-out, inefficient air valves. These offer a big market for the No. 500. Last season an aggressive dealer sold six hundred Airids over his counter at a clear profit of more than three hundred dollars.

Airid replacement business can be a source of big profit for you this Winter.

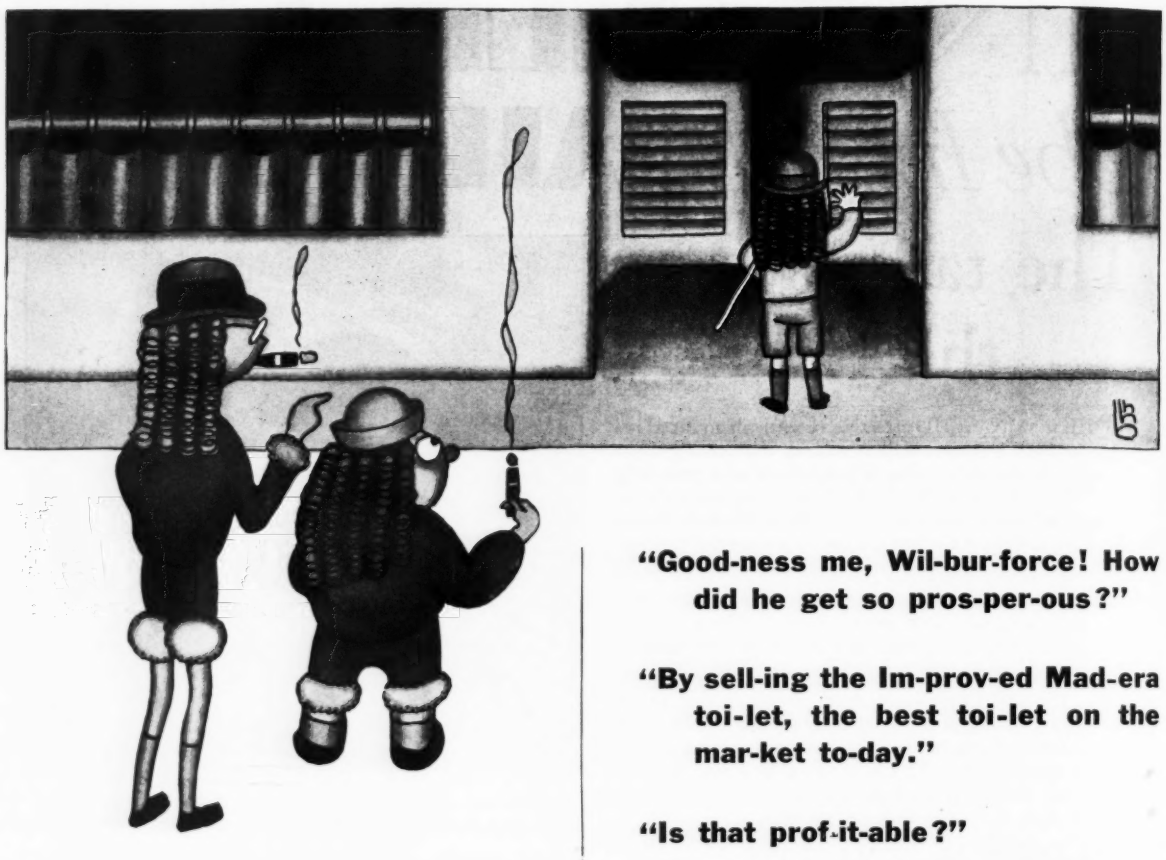
Advertisements now appearing in the leading magazines will tell millions of readers that Airids make radiators hot. Take advantage of this advertising by putting a display of Airids in your window.

Vac-Airid No. 510 for "below atmosphere" jobs—allows the air to escape but prevents its return into the system.

AMERICAN RADIATOR COMPANY

40 West 40th Street Accessories Division IAV-811 New York, N. Y.

The Plumbing Primer



"Geor-gie Daw-son is a luck-y lit-tle lad."

"You have said a lap-full, Le-roy. He has got roll-er skates and a bi-cy-cle and a goat."

"His fa-ther must be stink-o with mon-ey, Wil-bur-force."

"Cer-tain-ly he is. He is a pros-per-ous Mas-ter Plumb-er."

"Good-ness me, Wil-bur-force! How did he get so pros-per-ous?"

"By sell-ing the Im-prov-ed Mad-era toi-let, the best toi-let on the mar-ket to-day."

"Is that prof-it-able?"

"I hope to kiss a don-key it is prof-it-able! Four times as prof-it-able as sell-ing a wash-down toi-let."

"No won-der Geor-gie has a bi-cy-cle and a goat."

"No won-der in-deed, Le-roy. Let us fol-low him. May-be he will drop a nick-el."

MADDOCK'S *Improved*

MADERA

THOMAS MADDOCK'S SONS CO. ▪ ▪ TRENTON, N. J.

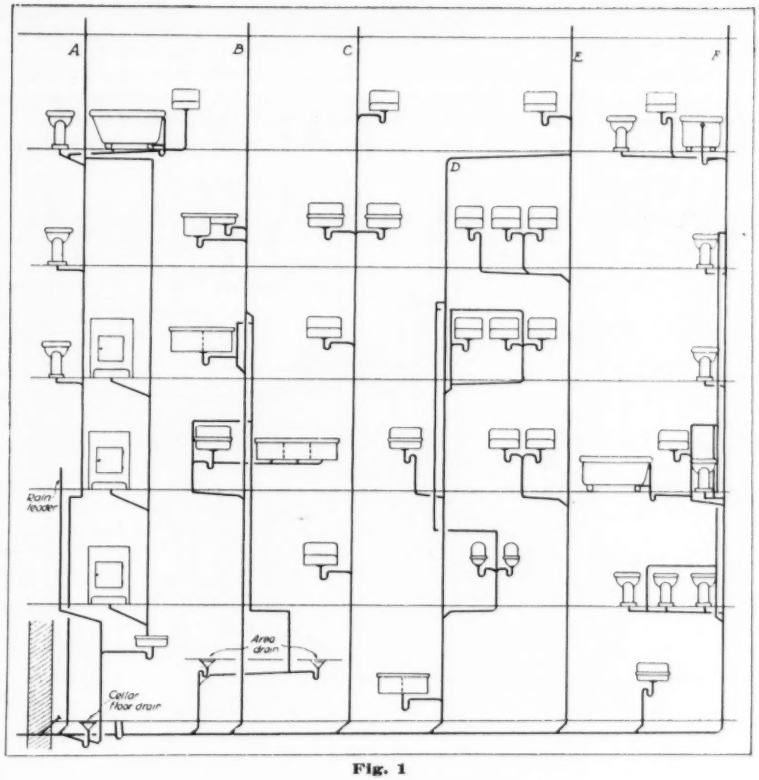


Fig. 1

"A Plumber's Nightmare"

This is the way one of our correspondents refers to this particularly interesting problem

IN PRESENTING the incorrect plumbing elevation shown in the plumbing problem of the August 25, 1928, issue it was remarked that practically all the mistakes to be found in that drawing were taken from the pilot drawing of one or the other of two Atlantic Coast cities. This elevation is shown in Fig. 1.

You will agree that some of the mistakes shown in this elevation are very bad, and we are anxious to see how the Class has handled some of these things.

Some of the answers to the drawing we will show in this issue, and another lot of them in the next Schoolmaster article.

Among those submitting corrected drawings are:

Fig. 2.—James E. Callan, Pittsfield, Mass.

Fig. 3.—Joseph Quirk, So. Boston, Mass.

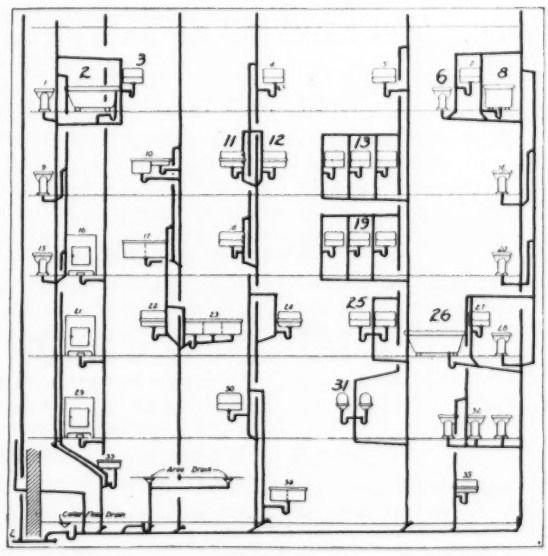


Fig. 2

Fig. 4.—C. B. Caster, Arkansas City, Kans.

Fig. 5.—Otto Swoboda, St. Paul, Minn.

Fig. 6.—Wm. M. Glose, Jr., Allentown, Pa.

Fig. 7.—Marvin E. Babbitt, Seymour, Wis.

On account of lack of space, it is necessary to return some of the drawings by letter accompanied by the comments of the Schoolmaster.

As we stated in the introductory remarks to the problem, one of the two cities alluded to above has an ordinance which demands the venting of fixtures only when they are in a group of two or more—that is, a single fixture standing alone would not have to be vented, no matter how exposed it might be to siphonage. Where such a law ever originated we cannot guess, any more that we can guess where a thou-

sand other surprisingly wrong practices and theories came from.

Another practice of one of these cities was to connect an inside rain leader on the sewer side of the main tray, in order that it might act as a vent for the sewer. On top of this, however, was the requirement that the leader connect through a trapped floor drain.

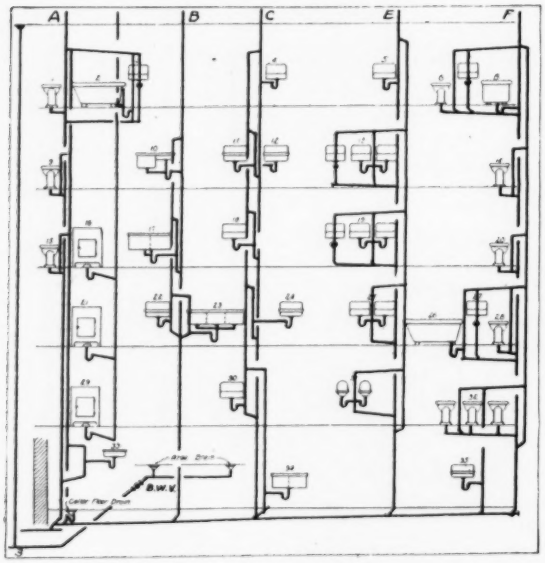


Fig. 3

We shall see how these and other practices that are none too good were handled.

Discussion of the drawings is as follows:

From Pittsfield, Mass.

Fig. 2.—Here the main trap is retained, but besides the regular fresh air inlet a vent is taken off on the sewer side of the trap and carried through the roof. The great argument against the use of the main trap is that it acts as an obstruction to the use of the stack or stacks of each building for the free venting of the sewer. The vent outside the house trap is for the purpose of supplying this ventilation. We are not entirely favorable to the main trap, but if it is to be used the sewer vent is a good thing to have.

A cleanout is shown at the foot of each stack. This is a good provision, and nearly all plumbing codes now call for this. There are some who argue strongly against the use of cleanouts on the ground that when a cleanout cover is removed, particularly by an inmate of the house, it is seldom replaced, or, if replaced, it is not effectively done.

Eleven and 12 and two fixtures in groups 13 and 19 could be provided with unit vents to advantage, as in the case of 25 and 31. Eight should be stack vented, thus saving the expense of a separate vent.

We note that 6 is wet-vented through the connection of a lavatory and that 26 is likewise vented. While this form of venting is frowned on by many, our own opinion favors it if not carried to an extreme. We would think that 2 could be vented by the connection for 3.

The drawing otherwise is O. K., and we may state that it was well made.

From Boston, Mass.

Fig. 3.—The maker of this drawing alludes to the original drawings as a plumber's nightmare, and he isn't so far wrong. It will be noted that the rain leader and area drains connect into a separate storm sewer.

There is nothing, so far as we can see, that is out of whack in this drawing.

We are led to say that we haven't had any work from the maker of this drawing for a long time, and we have to say further that the drawings he submitted in his early days in the Class were not nearly so good as this. Here is a fine example of what study brings about.

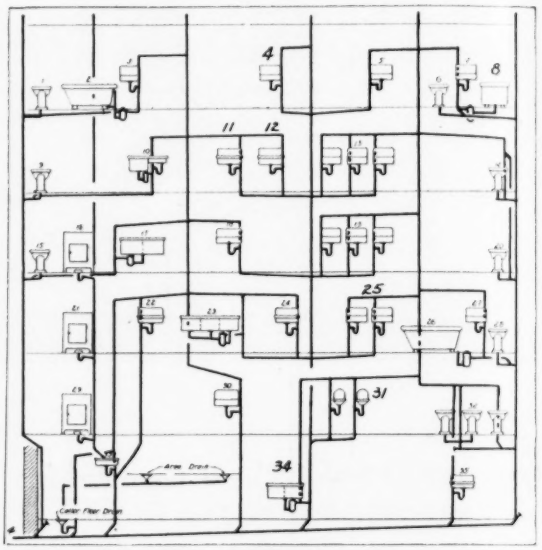


Fig. 4

From Arkansas City, Kansas

Fig. 4.—A noticeable thing about this drawing is that through one connection and another, both vent and waste, the plumbing system here shown is tied together clear across the drawing. As far as showing it in this way on paper is concerned, it is all right, but it will be agreed that in actual practice the job would not be installed that way. It would more likely be installed as in Fig. 2 or Fig. 3—that is, each soil or waste stack with its main vent stack being a distinct unit, not tied to any other stack, but, of course, all entering the same house drain.

According to our opinion, the venting of the cellar drain is an unnecessary expense. Venting is done to prevent siphonage of the trap, but we see no possibility of siphonage here, so why vent?

The area drains should connect directly with the drainage system and not indirectly as here shown. Fig. 2 shows them correctly connected. They should be trapped, but a single trap controlling both drains is O. K.

In the case of several pairs of fixtures, such as 11 and 12, 25, 31 and others, the unit vent may well be used. It is not that it is wrong to give each fixture a separate waste and vent, but that it is more economical to use the unit vent, and the work is actually improved thereby, for it is not made any less effective and is simplified. Fig. 3 shows the unit vent used in five places.

Thirty-four has what appears to be a crown vent. Four and 8 could be stack-vented.

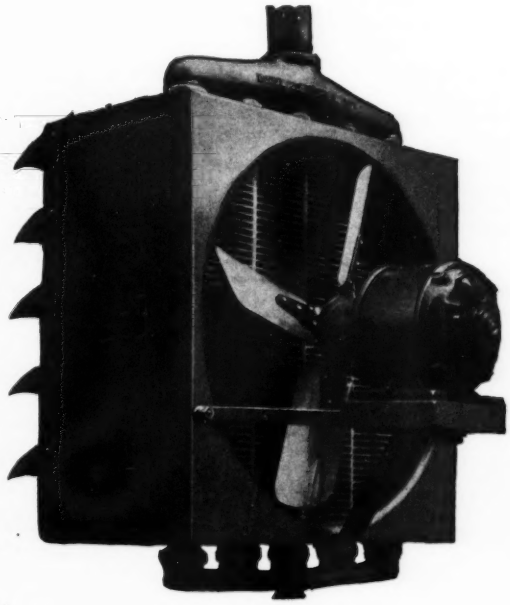
In several instances the bathtub trap is vented through the waste and vent connection of the lavatory. This constitutes a wet vent, which, in our own opinion, is acceptable practice, but which nevertheless is held in disrepute under many plumbing codes.

From St. Paul, Minn.

Fig. 5.—In this drawing many of the traps have not been adequately shown. We have therefore indicated by

THERMAL UNIT MECHANICAL

Heat Where it is Wanted — And When it is Wanted —



THE three component parts of the Thermal Unit assembly are the heating element, electric fan and deflectors. All are assembled into a compact unit and held together by a sheet metal cabinet of attractive appearance.

These three parts, heating element, fan and deflectors, represent the very latest developments in unit heating.

The heating element is the only one on the market in which the steam channel or prime surface and extended surface are cast integrally, without joints, welds, flanges or brazed or soldered connections. It is positively leak proof, freezing cannot crack it, galvanic action cannot weaken it and it is non-corrosive.

The large stream line core provides free passage for the air. Smooth surfaces, rounded edges and parallel spacing all aid in the free passage of the air, too.

The motor and fan are of special Thermal Unit design and construction. They are quiet, powerful and durable.

The deflectors are designed upon airplane wing principles and can be depended upon to increase heat travel.

With Thermal Unit Heaters, you can have heat where it is wanted and when it is wanted —at the smallest cost and with greatest efficiency.

Send for the story of Thermal Units, "Put the Air to Work." It will be gladly sent you on request. You should know about Thermal Units.

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Please send me a copy of your booklet, "Put the Air to Work" explaining Thermal Unit Heating.

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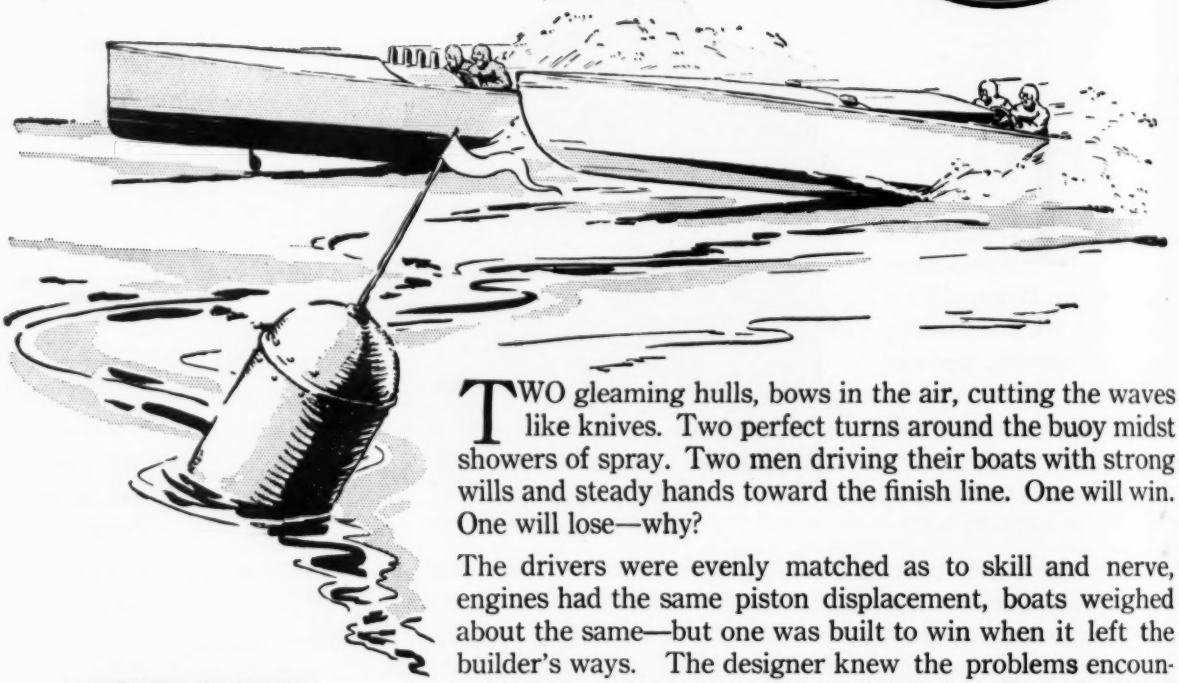
There's an EXTRA PROFIT in the Make-Up!

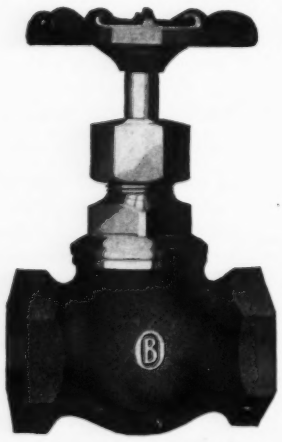


TWO gleaming hulls, bows in the air, cutting the waves like knives. Two perfect turns around the buoy midst showers of spray. Two men driving their boats with strong wills and steady hands toward the finish line. One will win. One will lose—why?

The drivers were evenly matched as to skill and nerve, engines had the same piston displacement, boats weighed about the same—but one was built to win when it left the builder's ways. The designer knew the problems encountered in speed boating and designed both hull and engine to meet certain specific needs. He did his best to solve the problem of speed and resistance to wind and water, the rest depended on the driver.

You have the skill, nerve and ability to guide your business to a successful win. But are you using materials designed and built to help you meet the problems of long life in service and speed of installation?—two vital factors attributing to the success of plumbing and heating contractors.

Because O-B valves are designed by a company which realizes that your success is its success, many users of these valves have found the answer to their service and speedy installation problems. Try a few O-B valves on your next job and remember that a saving of 5 minutes in make-up time results in reducing the cost of the valve 15%.



Ohio Brass No. 2 Line
Brass Disc Globe Valve
A competition line recommended for low pressure work.

Ohio Brass Company
Mansfield, Ohio
938V

Ohio Brass Co.

NEW YORK CHICAGO PHILADELPHIA PITTSBURGH ATLANTA CLEVELAND SAN FRANCISCO LOS ANGELES

PORCELAIN INSULATORS
LINE MATERIALS
RAIL BONDS
CAR EQUIPMENT
MINING MATERIALS
VALVES

a small black circle these traps that otherwise would appear to be missing. Reference to other drawings will show the method of showing traps.

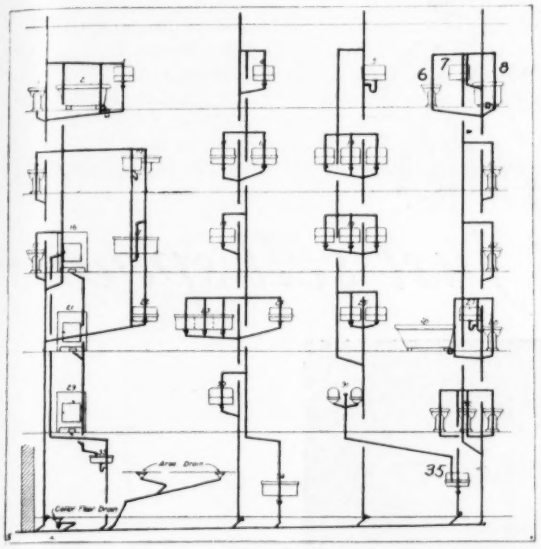


Fig. 5

The refrigerators should be trapped, and the refrigerator stack should pass through the roof. Where there is only one refrigerator, it is not necessary to run the stack through the roof, but it is general practice to do this when two or more refrigerators are served by the same stack.

The area drains should be protected by a common trap. The three-part wash trap needs only one trap and one vent, as this is considered as a single fixture. Unit vents might well be used here. See the discussion of Fig. 4.

Six, 7 and 8 are close enough to the stack to be stack-vented.

Instead of using 35 for the discharge of the drinking fountains, we would prefer to connect them directly into the drainage system. The reason for this is that when a sink or other fixture is used for the discharge of other fixtures, its regular use is destroyed to a large extent, and as 33 is used for the refrigerators, 35 would probably not be intended for this use, but for the ordinary purposes of a sink.

From Allentown, Pa.

Fig. 6.—In connection with this drawing a letter was submitted which discussed several of its features. We have urged members to do this thing, but nevertheless the practice of doing so has not become common, and we are therefore very much pleased to receive comments such as these. We can hardly ever publish more than a part of such a letter, but we shall always endeavor to give its leading points the space they deserve.

The letter calls attention to the venting of the area drains and states that "The code of this city (Allentown,

(Continued on Page 87)

QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

WANTS REMEDY FOR DEFECTIVE CHIMNEY DRAFT

Editor, "Domestic Engineering": I would appreciate your advice in regard to a difficulty which we are having with a chimney that serves a heating system.

Occasionally the draft is too strong, which, of course, can be controlled. Usually it is all right, but it is often very sluggish, and to eliminate these periods is our problem.

The house is heated by a hot water heating system with something like 350 sq. ft. of radiation, a grate area of about 1.75 sq. ft., and the chimney is 8x8 inches, 36 ft. high and 6 ft. above the highest part of the roof and any adjoining buildings. The chimney does not leak, having recently been pointed and increased in height to the above mentioned figure by a bricklayer.

Now let me suggest what I believe the trouble to be, and that is this: The chimney is not built within the house, and a portion is exposed to outside temperature, which I believe chills the air within the chimney and retards circulation or draft.

Kindly tell me if you know of any practical remedy for this trouble.

Pennsylvania. B. W. J.

From your letter it is apparent that almost everything has been done to place the chimney in first class working order. It is the proper size and height and has been pointed up so that it is now tight, and the fact that the chimney is partly inside of the house and partly outside should not make any difference in the draft, providing the chimney is lined with the usual flue lining, which it really ought to be.

If bricks are at all porous, and there is no flue lining, it might be well to coat the exposed part of the chimney with a layer of stucco or concrete.

However, one way to improve conditions would be to install a small electric-driven blower opening into the ash pit of the boiler.

There are several of these on the market and they are giving satisfactory results.

They can be installed and controlled by a thermostat so that they only operate when the increased draft is actually needed.

HEATING GARAGE BY BOILER IN ADJOINING RESIDENCE

Editor, "Domestic Engineering":—I have a job where the owner desires to heat his garage by the house heating boiler in his residence. The distance from the boiler to the garage is about 35 ft., and the top of the boiler is higher than the ground level and the floor in the garage. The garage is about 24x24 ft. Kindly tell me if this

The jeweler doesn't just sell spoons

When you sell a customer the famous Speakman Shower, think of the jeweler.

He doesn't sell the buyer just spoons. He sells him a whole set of silverware. He knows the added beauty of *matched* pieces.

So, when you sell one Speakman fixture, don't lose an opportunity to sell others. Speakman Showers are exactly matched—in design, pattern and finish—by Speakman fixtures for lavatory and tub. Show every customer how matched fixtures in the brilliant, tarnish-proof Speakman chromium plate will give sparkle and distinction to his bathroom.

Do this, and sales will take care of themselves.

SPEAKMAN COMPANY, Wilmington, Del.

SPEAKMAN
SHOWERS & FIXTURES

garage can be heated by the boiler in the residence, and, if possible, show me how to do it.

Illinois. E. G.

The garage can be heated by the house heating boiler, providing, of course, that the boiler is sufficiently large to take care of this added load.

The garage radiator should be fed through a drop riser; the drop riser should be taken from the nearest flow riser, which must be large enough to carry the load. The drop riser should be connected to the flow riser at the

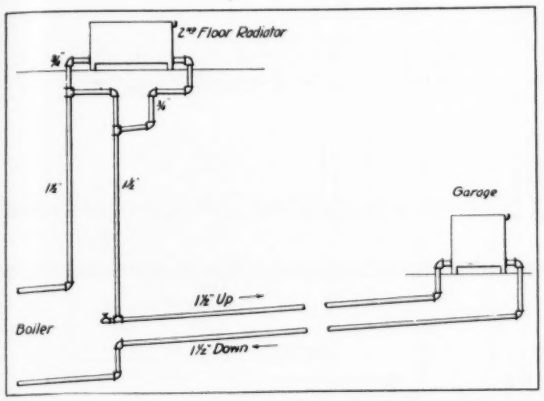


Fig. 1

second or third floor line and a separate return carried back to the boiler. See Fig. 1.

Added circulation may be obtained by connecting the return from the upper floor radiator into the drop riser at a point about 2 ft. below the floor on which the radiator is located.

Good results are also being obtained by installing supply lines direct from the boiler to the radiator in garage, with a circulation pump connected into the return line close to the boiler so as to force the heated water to pass through the radiator.

Legal Questionnaire

Answered by "The Judge"*

Sub-Contractor's Right to Claim Payment for Extras from Owner, When His Contract Is with General Contractor

Editor, "Domestic Engineering":—I have installed plumbing and heating in a residence for a contract price, with the understanding that any extensions or alterations would be additional. The work was ordered by the contractor who built the house. He took the job from the owner and was not to exceed a certain sum. He was paid by the week by the owner.

Upon completion of our work we presented our bill which was $100 in excess of the original job. We were paid the amount of the contract. We furnished them with an itemized bill, including the contract as one item. We gave them credit for this amount on the entire bill.

The owner says that we should collect the balance from the contractor and the contractor says that we should collect from the owner. Now can you give us information regarding the builder's claim in this; also any information relative to the collection of this claim would be greatly appreciated.

Vermont. W. G. H.

Answer:—Your problem would seem to be a very simple one, and that is, how to compel the contractor to pay you for the extras which he ordered. You do not state, but I shall assume that your contract was with the contractor. In that case, unless the owner authorized the contractor to act as his agent in ordering the extras, you have no claim against the owner; except under your mechanic's lien law, of which I shall speak later. You state that the extras were ordered by the contractor and he should therefore pay for them; this is especially true if your original contract was with the contractor.

If your original contract was with the owner, there is a slightly different aspect to the situation. Even if your original contract was with the owner, to make the owner liable to you for the extras which were ordered by the contractor, you would have to prove that the owner did something or said something which would prove that he authorized the contractor to give you the orders for the extras on behalf of the owner. That is, in order to hold the owner for payment of the extras, you would have to show, either that you had contractual relations with him with regard to the extras, or that the contractor had authority to bind the owner for payment for them. Of course, if your original contract was with the owner, and a part of that contract was that you should be paid extra for extra work, it would be easier for you to prove that the owner is now liable to you. If your original contract was with the contractor, then you probably would have to have a very strong case in order to hold the owner for extras which were ordered by the contractor.

From the meagre facts which you have given me, I should say that you should consult an attorney and start suit against the contractor. At least, the attorney can talk with you and receive details of the transaction and then advise you for your best interests.

I do not know enough about the situation to know whether you are in a position to work out your mechanic's lien rights against the owner. When you consult your attorney you can go into the matter of your mechanic's lien rights and perhaps find that you have a right to enforce your lien rights against the owner's property.

It might be well to bring suit against both the owner and the contractor and thus eliminate the possibility of losing. One or the other of them owes you that $100.

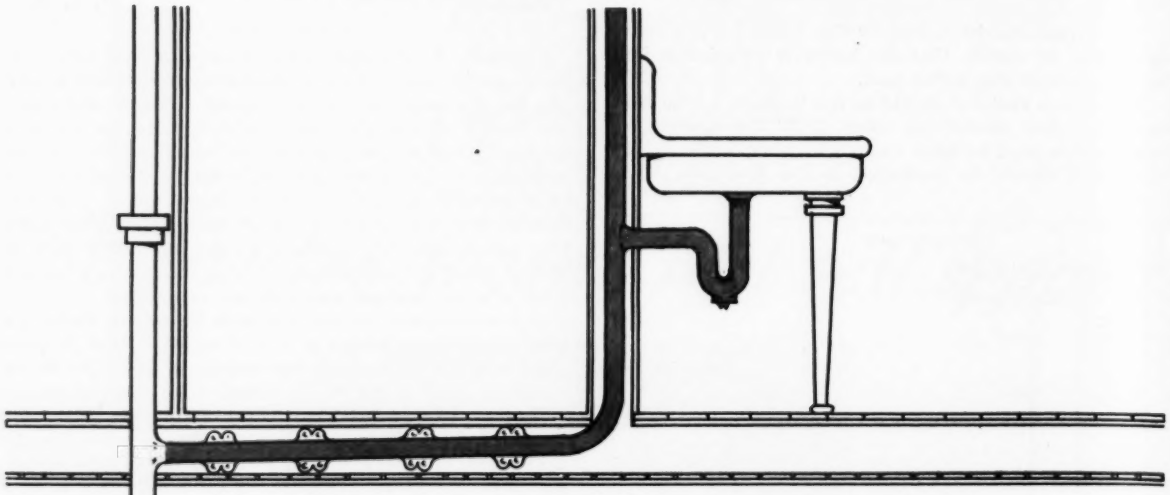
*Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

Ventilation in the Home

With the body in good shape and by wearing somewhat heavier clothing in the home, it will be possible to ventilate properly before the fires are started. This is best accomplished by opening the windows in the living rooms and bedrooms from the top and bottom, the distance depending upon the amount of air movement on the outside; a lesser opening being required when the wind is strong. Drafts can be avoided by using a window deflector, a board or piece of metal for the lower opening.

In the daytime it is well to leave the windows open to admit sunlight so that the ultraviolet rays, which do not pass through the ordinary window glass, can enter. There is some evidence showing that vitalized air—that is, air which has been in contact with the ultraviolet rays of the sun—has a health-improving effect when breathed. These rays also have disinfectant or germ killing properties. For these reasons, then, it is advisable to admit direct sunlight freely into living and working quarters.

LEAD PIPE



On jobs like this—
is where it shows—

When you have to install a trap and waste line in limited space is when the wish for lead pipe is made.

It's so easy to use flexible Lead Pipe in these tight places. String it just like wire—make joints that are the strongest part of the line but above all, do a job that will be trouble-free because it is done with the everlasting metal.

Think of the time you can save—think of the money you make—think of the job you do—then think of Lead Pipe.

NATIONAL LEAD COMPANY

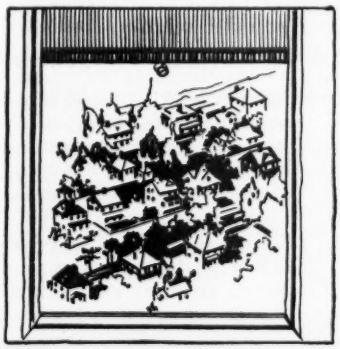
National Lead Co. (Principal Office) 111 Broadway, N. Y. C.
Georgia Lead Co. Atlanta, Ga.
National Lead Co. (Jas. Robertson Lead Works) Baltimore, Md.
Chadwick-Boston Lead Co. Boston, Mass.
National Lead Co. Buffalo, N. Y.
E. W. Blatchford Co Chicago, Ill.
National Lead Co. (Raymond Lead Works) Chicago, Ill.
National Lead Co. Cincinnati, Ohio
National Lead Co. Gibson & Price Co. Cleveland, Ohio
Lawrence Shot & Lead Co. Omaha, Neb.
John T. Lewis & Bros. Co. (Tatham Bros. Works) Philadelphia, Pa.
National Lead & Oil Co. of Pa. Pittsburgh, Pa.
National Lead Co. St. Louis, Mo.
National Lead Co. (Northwestern Works) St. Paul, Minn.
Hoyt Metal Co., Ltd. of Canada Toronto, Canada

RETAIL ADVERTISING SERVICE

$4.20 for twelve weeks' service. We send new cut each week. You take copy from this page.

Every merchant wants to build a dominant place for himself in his community. He may continue to do business by relying on satisfied customers—but advertising will cut down the length of time it will take him to build a business by any other method. This page is for the use of busy men. Use the copy in it. If you want to use the newspaper cuts, $4.20 will bring you twelve cuts—one new one each week for twelve weeks. We also send a reprint of this page to those who use the cuts.

Series No. 39



Going to heat "all outdoors"?

WILL a part of your fuel bill this year be spent for heating the air around your chimney top? Many an inefficient plant does this year after year because it has not been properly adjusted. We have a regular service of heating plant inspection, at a flat rate. It's very reasonable, and it assures you a heating plant that will heat your house instead of wasting fuel on the outside air.

(In this space your Name, Telephone Number and Address)

ONE user of the news items on this page reports business secured by these reading notices. Use them—they cost you nothing. Clip this one out and hand it to your local paper.

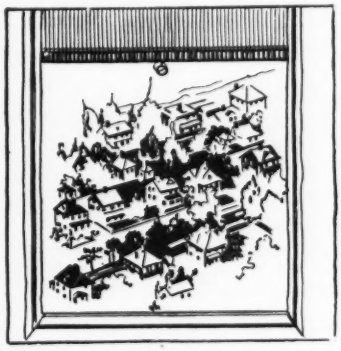
YOUR CHIMNEY IS UNDER SUSPICION!

The next time you are bothered by cold rooms, you might try entertaining your guests on your chimney top, says Harry Brown, local plumbing and heating contractor.

"Many a home is paying big fuel bills for the privilege of heating all out-doors," says Mr. Brown. "Into the fire goes a shovel of coal, and if the heating plant is inefficient it will whisk the heat value out of the chimney, leaving the rooms the benefit of what's left.

"Chimneys are meant to dispose of waste products of fuel, not of their heat value. Commencing a heating season without an inspection of the heating plant is like starting on a long auto trip without looking to see if the gas and oil are all right."

Every chimney a possible source of waste



WHAT goes out of your own chimney—the waste products of fuel, or the heat value you buy with your coal or oil or whatever fuel you use? An inefficient heating plant will waste a goodly portion of fuel. Let us inspect your plant—we have a regular inspection service. Just telephone for details.

(In this space your Name, Telephone Number and Address)

HERE is a sales letter of timely interest—insert your own terms for an inspection service for heating plants.

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
November 10, 1928.

Mr. Edward Jones,
Two Rivers, N. Y.
Dear Sir:

Next time you are drawing a check for the coal man, or the oil man, compare the cost of fuel with the benefits you are receiving. Do they seem equal to the cost?

Many a heating plant functions, after a fashion, for years. But if you find it necessary to force your fire—if you find it difficult to get the house warm in the morning—if you feel chained more or less to your heating plant, we suggest an inspection to save you time and money.

You know what happens when piston rings wear out in an automobile. Something like that may have happened in your heating plant. We have a regular inspection service which assures you that nothing of this kind can go undetected long enough to cause you great loss through waste of fuel.

We charge you only ($_____) and for that small sum we inspect your heating plant at the commencement of the heating season and again shortly afterward to make sure that all is well in your basement.

Just telephone.

Three Thousand Doctors Study Plumbing, Heating and Ventilating

PLUMBING, heating and ventilating contractors and engineers have always maintained a keen interest in public health, and doubtless many of them receive more satisfaction from the knowledge that their work is of great benefit to the public than from the money they make in business. The result is that it is becoming better known that safe and adequate water supply, pure air, warmth and removal of wastes are among the fundamentals in the maintenance of public health. In the meantime doubtless the plumbing, heating and ventilating contractor would like to know what the doctor thinks of the plumbing, heating and ventilating.

Baby Left Sleeping in Auto; Dies from Carbon Monoxide

Madison, Wis., May 27. — (AP) — Dorothy McKay, 2 months old, who was left sleeping in a closed automobile, was found unconscious a short time later and died today, the victim, doctors thought, of carbon monoxide gas.

Far-seeing medical men have long realized that control of the environment must go hand in hand with the medical practice, and it is interesting to learn that there is an increasing recognition in the medical profession of plumbing, heating and ventilating, as factors in public health.

The 1928 annual meeting of the American Public Health Association, held in Chicago recently, was attended by more than three thousand of the leading public health and medical authorities of this country, Canada and Mexico—some came from Europe. This was the fifty-seventh annual meeting. The A. P. H. A. for fifty-seven years has sought to improve public health by the prevention of disease.

While curative methods have been given wide publicity, the quiet unassuming work of prevention of the American Public Health Association and such organizations as the American Society of Sanitary Engineering, the National Association of Master Plumbers and American Society of Heating and Ventilating Engineers has been going on for some years.

Everywhere one sees advertisements appealing to possible purchasers on the grounds that this or that will improve health. The plumbing, heating and ventilating contractor and engineer might well take a hint from this and lay greater emphasis upon the health value of his services and appliances. Fundamentally all legislation, bearing upon his work, must find its justification in the fact that the public has an interest at stake. Were it not true that good plumbing, heating and ventilation are conducive to health and that improper installations are dangerous, there could be no excuse for the enactment of plumbing, heating or ventilating codes.

The growing realization by the members of the A. P. H. A. that plumbing, heating and ventilating are public health matters was reflected in the allotment of about fourteen per cent of the entire time of the 1928 convention to these subjects. This association also elected a fellow of the public health engineering section, George W. Fuller, as president of the association for the coming year. The public health engineering section showed a larger growth during the year than any other section, having added more than seventy new members.

School Room Ventilation

School room ventilation received a good deal of attention. Outdoor air conditions with respect to carbon monoxide pollution, suitability of various sources of air supply and the effect of atmospheric conditions upon the transmission of ultra violet rays in sunshine were also discussed. The reaction of the human body to various atmospheric conditions, milk pasteurization, water sterilization by ultra violet rays, public health engineering standards, phenol pollution of water supplies, financing sewage and water supply improvements, water shed sanitation, cleanliness, hygiene and ventilation in industrial plants, stream pollution, treatment of packing house wastes, etc., were other subjects in the fields of plumbing and ventilation which interested the doctors.

Exhibit Showed Cross Connections in Plumbing Systems.—The exhibits showed many things of interest, including methods for testing of ventilating systems, use of illuminometers in tests of illumination and of audiometers in noise surveys, and a demonstration of pollution of sterile water in hospitals through cross connections in the plumbing systems, such as have resulted in the death of many patients from post-operative infections. This demonstration was made by connecting in the usual manner a hospital instrument sterilizer and water sterilizer, except that glass piping was substituted for the customary metal pipes. By placing dye in the instrument sterilizer it was visibly demonstrated how infection could be carried from one patient to many others in three steps as follows:

(1) Infection carried on instruments from operating room to instrument sterilizer; (2) infection carried in water pipes from instrument sterilizer to sterile water tanks, and (3) infection carried to operative wounds of all subsequent patients in the supposedly sterile water drawn from these tanks.

This demonstration, together with diagrams illustrating types of actual cross connections found in swimming pool installations, filters, pumps, etc., did much to further the interest of medical men in good plumbing, and many asked for detailed information regarding proper ways of connecting the hospital fixtures, in particular.

Much Money Used for Plumbing and Ventilating Hospitals

It was stated at the convention of the A. P. H. A. that $300,000,000 are spent each year in new construction in hospitals alone. This includes surgical instruments and other equipment. Of this amount $46,000,000 are expended in plumbing, heating and ventilating. This is the largest single item with the exception of the material that goes into the foundations and walls of hospitals—masonry, hollow tile, concrete, etc., which item is $58,000,000. Sterilizers, which are listed as plumbing fixtures, run into $4,000,000 each year. Refrigeration is represented by a yearly expenditure of $11,000,000.

Ventilation of City Streets

A note of warning was sounded concerning the significance of carbon monoxide on congested streets, especially boulevards, and a plea was made for adequate consideration of the possible need for mechanical ventilating systems on lower street levels.

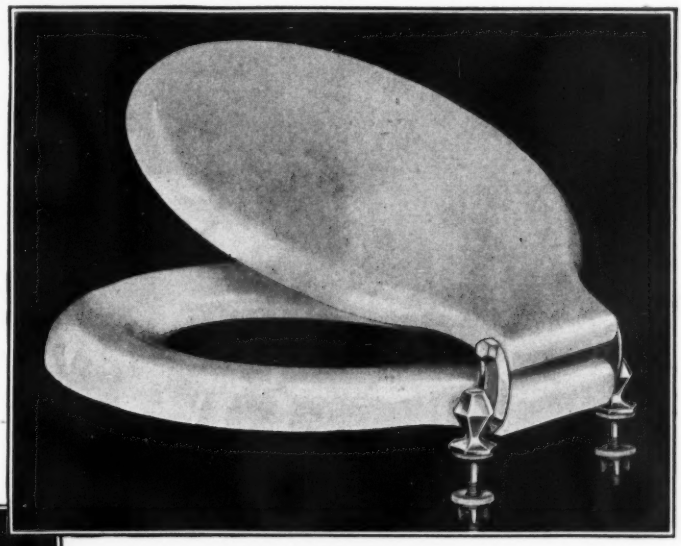
One of the most interesting papers from the point of

A Brunswick Triumph

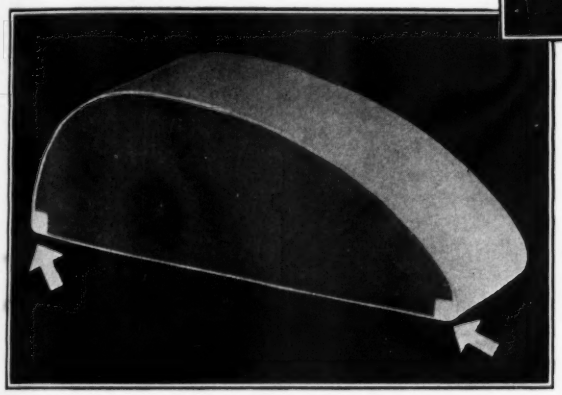
In Seat Manufacture!

A sheet-covered seat that is guaranteed indefinitely not to split at the edges

As shown below, Brunswick's new White Seat has a heavy reinforced cushion of tough, resilient pyralin right on the outer edges where blows and rough usage are liable to cause white seats to split open. The sheet pyralin on the new Brunswick Seat is welded to this heavy cushion edge of pyralin. The seat edge is thus made 9 *times* as thick as a single sheet!



Brunswick White Seat, Model 300, with chromium plated hexagon hinge



THE makers of the famous Whale-bone-ite Seat now offer their newest triumph in seat manufacture. The Brunswick White Seat shown here is a pyralin sheet-covered seat on wood base with a unique patented feature that means complete protection at the outer edge of the seat where danger of damage is greatest.

Instead of merely joining the two sheets of pyralin by overlapping or butting, as has been the custom in white seat manufacture, Brunswick has developed and patented a joint which makes what has been the weakest part of a sheet-covered seat now the strongest.

The two sheets of pyralin are now welded at the edge to a heavy cushion of pyralin. Thus instead of the usual thickness at the edge, where blows are most apt to hit, this new-type seat has solid pyralin there 9 times the thickness of a single sheet!

Even the roughest usage won't damage this amazing new construction. It enables us to guarantee this edge against defects for an unlimited period.

Our large manufacturing facilities enable us to offer the Brunswick White Seat at exceedingly attractive prices.

In addition to the Whale-bone-ite Seat, and this new White Seat, Brunswick is now manufacturing a complete line of wood seats. Thus in the Brunswick line you can now find seats for every type of installation. Our catalog showing all models should be in your file. Write for it. The coupon is for your convenience.

Fill In, Clip and Mail

Box 302, Seat Department
The Brunswick-Balke-Collender Co.
623 S. Wabash Ave., Chicago

Send your complete catalog, showing all models of Whale-bone-ite, White and Wood Seats.

Name.....

Address.....

City..... *State*.....

BRUNSWICK WHITE SEATS

Made by the Manufacturers of the Whale-bone-ite Seat

THE BRUNSWICK-BALKE-COLLENDER CO. · Chicago · New York

NEW

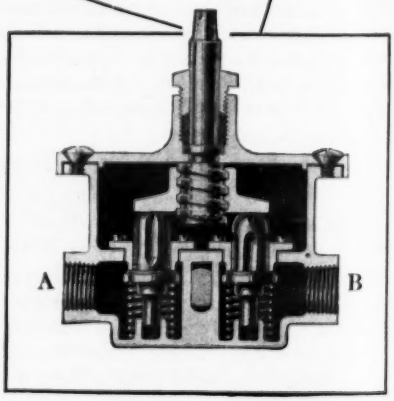
Diagram shows New Clow "Triumph" mixing valve. Cold water valve at right opens first; the water enters at B. Hot water valve follows; the water enters at A. Cold water valve shuts off before the hot water is full on. Note how water presses *with* the closing of this valve—not against it. Note also phosphor bronze springs which help closing of both valves.

The New Clow "Triumph" Mixing Valve

The new Clow "Triumph" Shower Mixing Valve closes *with* water pressure—not against it. Moreover, phosphor bronze springs on both hot and cold valves further insure a proper closing each time. Water cannot trickle, to cause wear on seats.

And the seats are renewable. They are not threaded, but are held in place with screws. A few turns of a screwdriver removes them. No wrench is needed.

The Clow Mixing Valve is just one of the new "Triumph" line of fixtures. Write us for further information on this line of "15 year tested" fixtures.



JAMES B. CLOW & SONS, 201-299 N. Talman Avenue, CHICAGO
Sales offices in principal cities

CLOW

PREFERRED FOR EXACTING PLUMBING SINCE 1878

view of the ventilating contractor and engineer was that of Joel I. Connolly, chief of the bureau of sanitary engineering, department of health, Chicago.

Except for the automobile boulevards the amount of carbon monoxide in the air of the city of Chicago is not enough to be a serious public hazard to adults. This conclusion was reached after an analysis of 690 air samples. Associated with Mr. Connolly in this work were Mathew J. Martinek, senior sanitary chemist, and John J. Aeberly, head of the division of ventilation and industrial sanitation, Chicago department of health.

There were 133 deaths in Chicago from carbon monoxide exclusive of suicides during the three years 1925-1927. Minor illness caused by this poisoning may not necessarily keep a man from his work, but it nevertheless impairs his productivity and usefulness.

Instances of deaths of small children caused by a saturation of the blood with carbon monoxide, far less than that found to be present in the blood of policemen after eight hours of traffic duty, were cited to show the importance of proper control of out-door air conditions, as well as those indoors, wherever children may be.

The samples of air examined were collected at the curb instead of in the middle of the street, because it was agreed that the greater number of people exposed are upon sidewalks and in the adjacent offices and stores. Taxicab drivers, street car men and others engaged in similar pursuits which require them to spend many hours in the middle of the street are but a small proportion of the total population to be considered. There was a wide distribution of sampling points and, as was to be expected, the greater number of samples showed low concentrations of carbon monoxide.

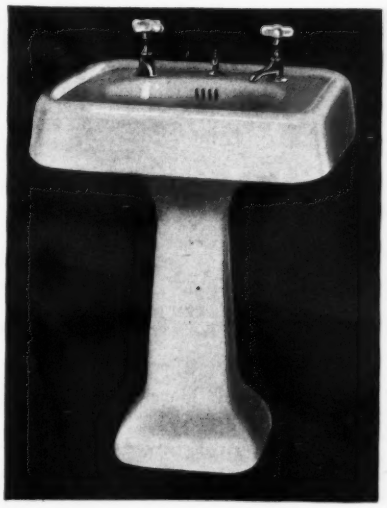
The investigations show that the air of automobile boulevards contains an average of four times as much carbon monoxide as air of residential streets, often enough to menace the health of all exposed over a period of several hours, particularly if their activities require deep and rapid breathing. Among other conclusions, it is stated that idling of motors on the streets should be restricted to a minimum, and, if it cannot be prevented, at least it should not occur near air intakes for ventilating systems, and that congested automobile boulevards at street level and the lower level of double decked streets do not afford a satisfactory source of air supply for habitable rooms.

A report of the discussion of school room ventilation at the A. P. H. A. convention will appear in an early issue.

Menace of Stream Pollution

(Continued from Page 28)

of permitting sewage to run directly into the body of water, it may be purified by the operation of an intermediate disposal plant. Already fifteen municipalities have adopted the recommendations of the state department of health and the state water commission to initiate plans for the correction of the present methods of sewage disposal. Some towns have voted appropriations for the erection of sewage plants. In a few cities the construction of plants is now in progress. Estimates for the erection of a plant to take care of the city of New Haven place the necessary expenditures at $3,000,000, and of that amount $725,000 has already been appropriated. The city of Bridgeport has secured permission from the state legislature to increase its bonded indebtedness to $1,500,000 for the purpose of extending its facilities for purifying the sewage that in the past has been dumped directly into Long Island sound. The city of Hartford has now under consideration plans for a sewage



Can You Show Your Customers Such BEAUTY As This?

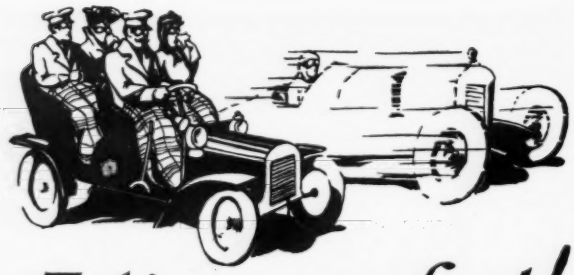
Glistening snow-white surfaces . . . graceful lines . . . artistic proportions . . . these are the features of Rundle ware that attract buyers at first glance and build volume sales. Rundle ware reflects the advanced ideas in enameled ware design—backed by highest quality and up-to-date features. Accurate fitting insures dealer maximum installation profit.

Write for beautifully illustrated booket that tells all about the Rundle line and explains why it builds more business for you.

Rundle Mfg. Co.
Milwaukee, Wis.

RUNDLE
PLUMBERS' SANITARY ENAMELED WARE
BRASS AND IRON GOODS

The Mark that Has Won the Confidence of Buyers



5 times as fast!

An old-time "buzz-wagon" ploughed through the dust at 12 miles an hour, while its modern low-slung successor whizzes by at 60—5 times as fast.

5 to 1 is an important ratio for plumbing and heating contractors to remember. It represents the comparative rate of pressure increase to temperature increase in closed systems.

Why closed systems are dangerous

This comparative rate shows that in a closed domestic hot water supply system failure to turn off a heater can have a disastrous effect if no relief is provided. An increase in temperature from 72 to 110 degrees increases the pressure from 60 lbs. to 265 lbs., and even extra heavy boilers are only guaranteed to be tight up to 150 lbs. working pressure.

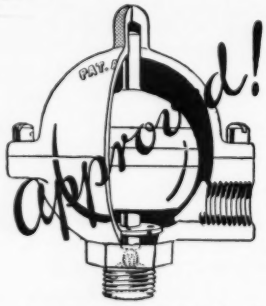
How a Red Top Relief Valve insures safety

A Red Top Relief Valve provides an outlet which automatically relieves before pressures reach the danger point. It works on the gravity principle, pressure in the system forcing a nickel weighted piston from the seat. The lead ball is cast in four sections, three of which are removable so the valve can be set to relieve at 50, 75, 100 and 130 lbs.

A Red Top Relief Valve Model No. 2 has the lead ball cast in a single section and relieves automatically at 30 lbs. This valve is used as the basis of an efficient and economical system of hot water heating.

Both valves, by their positive operation have earned the official approval of the Underwriters' Laboratories,Inc., America's foremost testing organization.

Make use of the coupon. Red Top folders will give you more detailed information.



Sectional View, Model No. 1 for domestic hot water supply systems

Neptune Meter Co.
50 E. 42nd St. New York City, N. Y.
Branch Offices in Principal Cities

Red Top Relief Valve

NEPTUNE METER CO.
50 East 42nd Street, New York, N. Y.
Please send me a copy of the new edition of your folder, "Protection," which describes Red Top Relief Valves and their operation.
Name.....
Street.....
City.....
State.....

disposal plant that will approximate in size the cost that already approved for Bridgeport. Plants have either been constructed or planned in Norwalk, Norwich, Willimantic, New Britain, Winsted, Torrington, Waterbury, Naugatuck, Ansonia, Derby, Shelton, Danbury and Middletown.

But the solution of the problem of disposing of industrial waste is not so readily found. There the question is not merely one of finance. Rather it is a question of finding a method. Domestic sewage can be filtered to almost a perfect purity. No method has yet been found which can satisfactorily eliminate the poisonous acids that constitute industrial waste. The state departments are working in co-operation with committees of manufacturers' associations, but the only conclusions that have been reached are that industrial waste exists and contaminates. The alternative of barring industrial plants from any access to the streams of the state is obviously unavailable, since many of the industrial communities of the state depend entirely upon that access. It is interesting to note, however, that according to section 2560 of the general statutes, nothing in the regulations governing sewage disposal "shall be construed as recognizing a vested right in any person, corporation or municipality to discharge sewage into the waters of the state, or as legalizing such disposal of sewage."

Some Recompense

But even though the installation of municipal sewage plants involves great expense, General Wadhams points out that the system will not be without some monetary return. In other states, he says, such plants have produced enough fertilizer to pay the cost of maintenance and even a return on the original investment.

Selling in the Smaller City

(Continued from Page 22)

what he calls an "alley" location. There isn't anything against that, of course. Criticism of what we hear called the "alley plumber" is aimed at the type of man who will never lift himself out of that class.

Mr. Hunt now owns his own building—ample proof that he fitted at no time into the class which is criticized. As to the value of the sales room, he admits that he hasn't made any more profit, but "I certainly command more respect," he says. And no doubt he commanded respect when he was as yet building toward his own store building. For the profit which built the store must have come out of sound management in the old location. And the store will undoubtedly bring its own dividends as time goes on.

PROFITABLE BUSINESS

EVERY day the services Mr. Hunt offers are made known in the way of newspaper advertising. A list of five hundred people receive constantly sales letters from him. And on the subject of literature furnished, he says he will use "all I can get." The sales room is kept attractive and spotlessly clean so that it will be a genuine aid to sales. Such lines as an electric refrigerator are carried because they bring people into the store and help materially to pay the overhead. Service is available to customers at any time it is called for—one of the factors which helps a contractor to become "the family plumber."

On the financial side of the business there is the same consistently sound practice. All bills are discounted, to the greater good health of the profit column; every effort is made to keep collections coming in promptly, and as far as is humanly possible losses from bad accounts are

SIMPLEX
FLUSH VALVES

HOUSTON NATIONAL BANK · HOUSTON · TEXAS

Architects
Hedrick & Gottlieb, Inc.
Plumbing Contractor
George J. Robischung
Jobber
N. O. Nelson Manufacturing Co.

Simplex Flush Valve quality predominates in every respect. The four way by-pass arrangement allows them to be adjusted to any water pressure easily from the OUTSIDE.

Ask your jobber for full information or write us

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

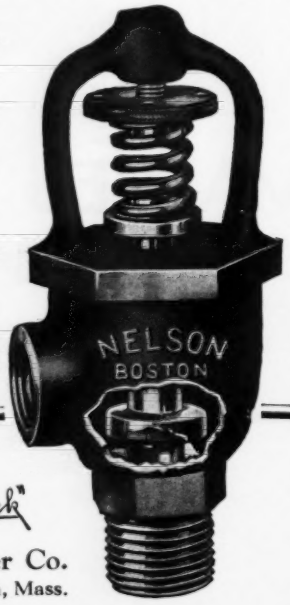
Our Catalog is

As you adjust the Nelson Relief Valve, you will hear a *click* when the maximum adjustment is reached.

Ten seconds is all you will need to adjust the Nelson to take care of any pressure from 1# to 175#.

A Real Relief Valve that will give you real service and remove for all time the uncertainty of your boiler jobs.

The external phosphor bronze spring of the Nelson assures perfect functioning at all times — it cannot rust.



"Built with a click"

The Stack Heater Co.
250 Stuart St., Boston, Mass.

PENBERTHY INJECTOR COMPANY
New York Office 71 Beekman St
Established 1886
DETROIT
Canadian Plant Windsor, Ontario

eliminated by checking the credit standing of new customers.

These are, of course, the expected things of the successful retailer. However, in making these investigations I wasn't interested in spectacular ideas. I was interested in getting an accurate picture of the retail field as a whole, to make sure that there would be a sufficient number of efficient retail outlets working along sound lines to make it profitable for the manufacturer.

There are other and a little more general factors in Mr. Hunt's success. In the first place, as he says himself, he enjoys the business. There isn't much use of talking about that fact. Every man will understand what it means to enjoy his work—even those who do not enjoy theirs.

"The controlling factor, I believe, in my business," says Mr. Hunt, "is that I have always taken an important part in all civic affairs and have never lain down when I was asked to do anything for any civic body. I always manage to find time for them when others seem too busy. I don't believe that one should ever be too busy, and once you get into it you will learn that other people are human and should be so treated."

IN STEP WITH PROGRESS

THAT probably represents very clearly the development which has gone on in American business generally in the last twenty-five years. It used to be a knock-down and drag-out fight on all hands. Competition was competition with no thought of co-operation in it. The only way you could co-operate with your competitor was to absorb him. But somehow the word got around that a man's competitors were human, too. In fact, he might be a likable person once you got to know him. And then, of course, when you found out that he was even better than you at your pet hobby—golf—or was as interested in any other hobby you might have—well, you decided that he was human. And that's the way results of the whole co-operative idea in American business may be summed up. We've discovered that "other people are human."

Mr. Hunt's organization work has, of course, taken in some affairs closer to his business. He has been president of his state association and was active in endeavoring to secure the passage of the "Hoover Code" in South Dakota. Past convention reports show him an active worker, and at the annual meeting in 1927, a joint session of the master plumbers and the associated contractors of the state, with Mr. Hunt in the chair, was held. He was at that time vice president of the associated contractors.

He represents, it seems to me, the type of retailer any industry should be glad to number in its ranks.

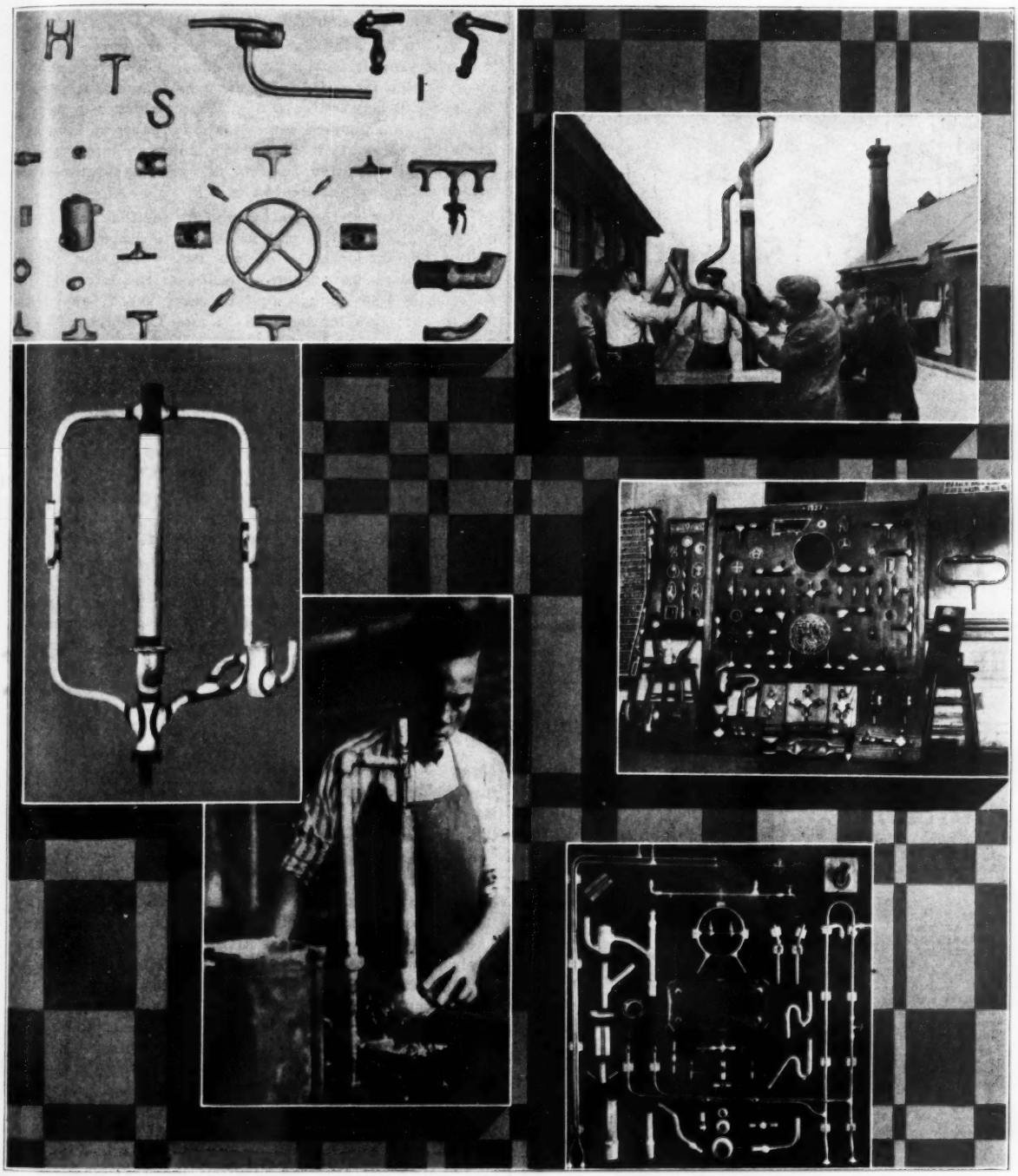
When the Air Is Dry

In contrast with the use of gas burners in a room, which throw off considerable moisture, the usual heating plant, such as a warm air or steam or hot water installation, delivers no moisture to the rooms, unless special provisions are made to secure it. By raising the temperature of the cold air in the room, it increases the drying effect.

In cold weather this drying of the air is so pronounced that it may become injurious. Provision should therefore be made to moisten the air or give it the proper degree of "humidity." This is done by the evaporation of water, or by allowing a small amount of steam to escape. This is especially necessary when there is considerable difference between the temperature of the outside and the inside air. Nevertheless, it is a good practice to watch the "humidity" or moisture at all times.

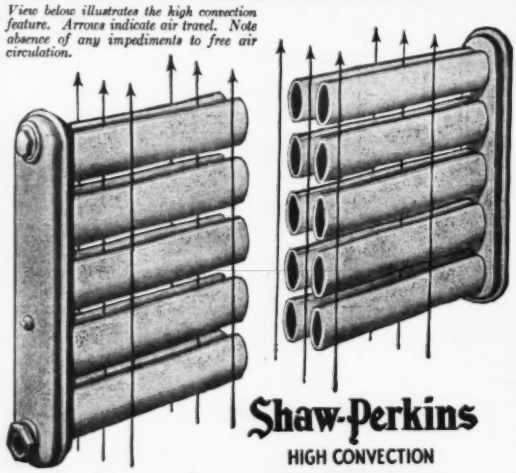
LEAD — ITS STORY AND ITS USES

No. 22 in a Series of Picture Stories Describing Lead and its Uses in Plumbing and Sanitation



SOME FINE LEAD WORK—**The upper left picture shows an exhibit of work done by first and second year plumbing students of the Haverhill Trade School of Haverhill, Mass. Upper right picture was taken at the Army Vocational Training Centre of Aldershot, England. Featured in this picture is a fine specimen of lead soil and vent pipe bending and joint wiping. Middle left picture is an exhibit by the students of the Milwaukee Vocational School of Milwaukee, Wis. Middle right and lower right pictures were taken in the Johnstown High School of Johnstown, Pa., and the State Trade School of Bridgeport, Conn., respectively. Both these pictures show the handiwork of the plumbing departments of these schools. At the lower left we see a native student of plumbing at work in the classroom of the Roman Baldorioty de Castro Technical School of San Juan, Porto Rico.**

View below illustrates the high convection feature. Arrows indicate air travel. Note absence of any impediments to free air circulation.



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HIGH CONVECTION
Radiators

MADE in low, narrow, jointless units, as long as 14 feet, for steam and hot water heating, cooling, drying and industrial application.

Shaw-Perkins High Convection Radiators are light in weight, heat and cool quickly, save space, are absolutely sanitary, and are unusually adaptable. They represent an advanced design in Shaw-Perkins standard oval tube radiation, which contains original and valuable features found only in this distinctive type of heating surface. **Get the full story of this modern radiator. Send for catalog "D".**

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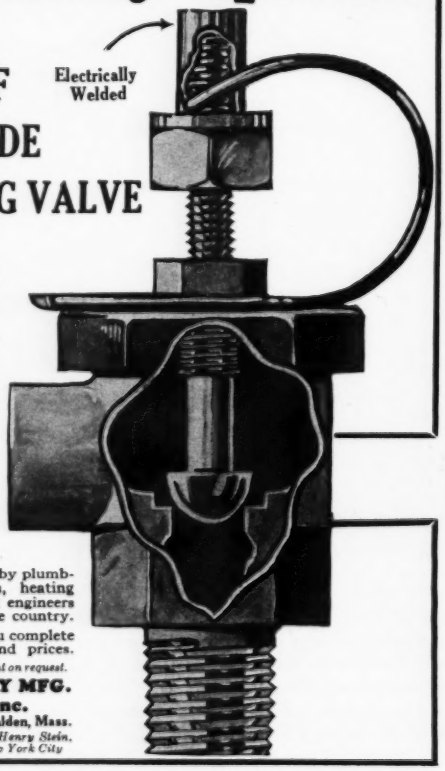
Donnelly Special

RELIEF OUTSIDE SPRING VALVE

Electrically Welded



This valve is perfect protection against excessive pressure. It is easy to install and any mechanic can adjust it in a few seconds. The outside spring will never corrode or lose its tension and due to its adjustment locking device can never work loose.

It is endorsed by plumbing inspectors, heating inspectors and engineers throughout the country.

Let us give you complete information and prices.

Catalog will be sent on request.

DONNELLY MFG. CO., Inc.
29 Mills St. Malden, Mass.
New York Rep.: Henry Stein, 60 Cliff St., New York City

Boiler Efficiency

(Continued from Page 26)

rapidly as radiation supplied is increased, and we conclude that it is not in the interest of economical operation to have to operate this boiler at a "high-point" on this combustion rate curve.

We note next the flue gas temperature curve and see that when supplying this 1,600 square feet of radiation at a combustion rate of 6.0 lb., that the temperature of the flue gas will be about 475 deg. Fahr., which is a reasonable operating temperature. Again we pause to note that when it is necessary to "force" the boiler to supply higher quantities of radiation, that the flue gas temperatures will run to values well above 700 deg. F.

Looking now at the draft curve, we see that we will require a draft intensity of 0.05 inches to maintain the required combustion rate of 6.0 lb. From the "firing period" curve, we note from scale on the left that the boiler will hold enough fuel to carry the 1,600 square feet of radiation for between 11 and 12 hours.

Now let us for a moment refer back to our Fig. 3 and consider the selection of a boiler on the basis of its rated capacity in square feet of direct radiation. Since this particular boiler may be operated to supply, we will say, any amount of radiation from 500 square feet to 3,000 square feet, it could be selected for any job within these limits so far as its ability to meet the demand is concerned.

Boilers, as you know, run in series and when you refer to a boiler catalog and make a selection, you should realize that, of the particular series, it is safe to assume that there is more than one of the series that will successfully meet the load demand. I can make myself much clearer by referring to this sheet, Fig. 6. Here I have, on a single sheet, a series of boiler efficiency curves, stack temperature curves and firing period curves for our Series B boilers.

Let us assume that the job in question will require an equivalent output in square feet of steam radiation of 1,400 square feet.

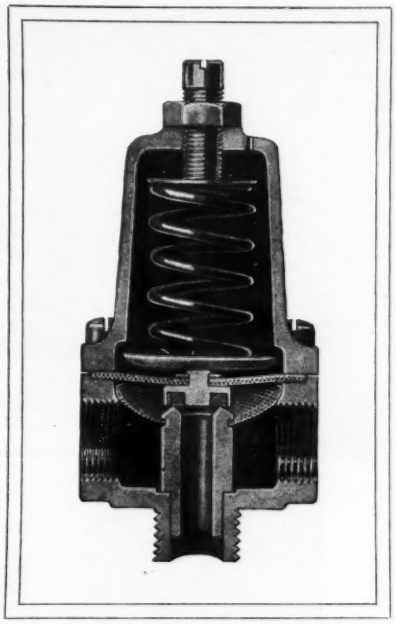
You will observe that the curves for each one of the boilers in the series from B-1 to B-6, inclusive, pass through the line for 1,400 square feet. Hence any one of the boilers would work on the job—that is, we could use the smallest of the series, B-1, or the largest, B-6.

Considering price of the boiler alone, the selection would naturally be made in favor of the smallest boiler of the series, namely B-1. Now let us see what these three curves of this boiler will tell us about operation. The efficiency curve shows that this boiler, B-1, when generating steam to supply 1,400 square feet of radiation, will operate at an efficiency of about 63.0 per cent, the stack temperature will run about 1,040 degrees F., and it will require firing every five hours. On the other hand, if boiler B-6 is selected, we note that we may expect an operating efficiency of about 72.5 per cent, with a flue gas temperature of 620 degrees F., and will operate for about thirteen hours on one firing charge. To better visualize this comparison, let us tabulate these figures, see Table 4.

Table 4

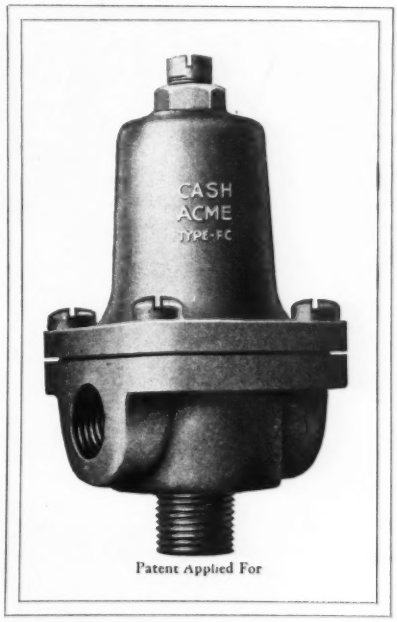
	Sq. Ft. Radiation Supplied	Operating Boiler Efficiency, Per cent	Flue Gas Temperature, F. Degrees	Firing Period, Hours
B-1	1,400	63.0	1,040	5
B-6	1,400	72.5	620	13

Now let us see how these respective selections would affect coal consumption, since the boiler will be purchased only once, and we must remember that every day it is in operation, fuel must be shoveled into it. Since 1 square



Sectional view of the new improved model Cash Acme Diaphragm Relief Valve.

A New CASH ACME *Diaphragm Relief Valve for* WATER *and* AIR



Exterior view of the remarkably compact and efficient control device the cash Acme Diaphragm Relief Valve.

Patent Applied For

HERE at last is dependable protection for range boilers, hot water systems and air tanks. A dependability that means new and greater profits for you and new and greater peace of mind for your customer.

This *improved* Cash Acme Diaphragm Relief Valve has a specially prepared sensitive diaphragm to which a composition seat disk is tied in such a manner, without pistons or guides, that it cannot stick even after longest periods of idleness.

The aluminum seat is protected against dirt and scale by a self-contained fine mesh strainer, and the brass body and spring chamber make the entire valve rust-proof. Even adjusting spring and assembly screws are udylite covered.

Easy, simple adjustment to any desired relief pressure is attainable by merely turning the adjusting screw on top.

The pressure at which you set the Cash Acme Diaphragm is the pressure at which it will "pop"—not ten pounds higher or lower.

Easily installed anywhere on the line. Write us at once for full details or ask your jobber about the new Cash Acme Diaphragm Relief Valve.

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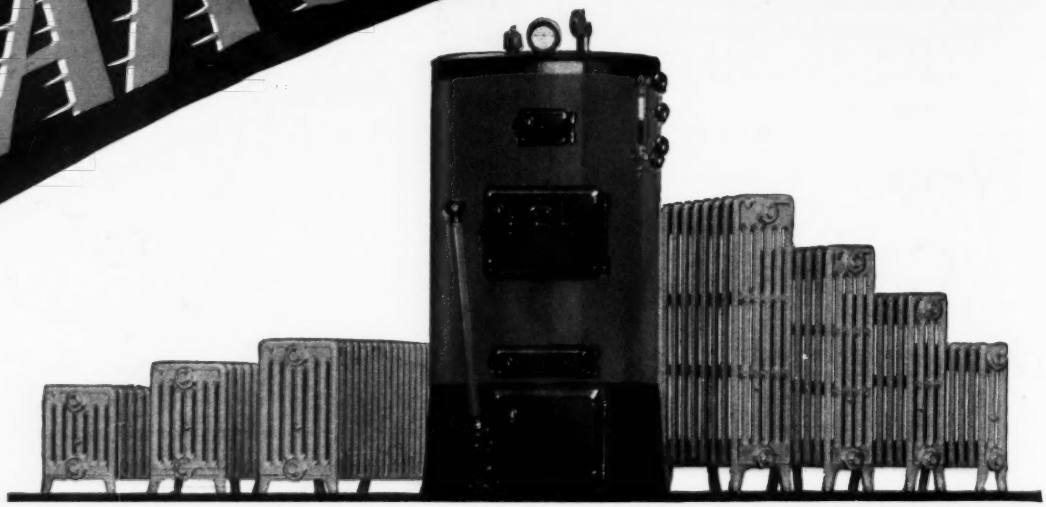
A New Creation
ARCOFLASH
—for the



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HEATING UNIT

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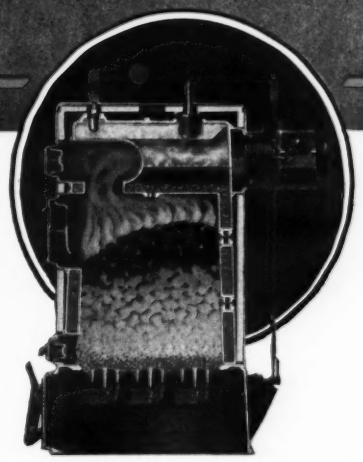

This is the Way Home Owners Want to Buy—

Every home owner wants *Undivided Responsibility* when purchasing heating equipment. When he buys an automobile, he does not think of selecting individual parts. He wants a car whose parts have been designed by specialists to function as an efficient unit. It is so with his heating plant. That is why "Arcoflash" has been designed as a unit outfit. We manufacture it and we guarantee it in its entirety. Thus you and your customers are protected with our *Undivided Responsibility.*

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Beginning December this year, when our production will be able to meet the demand, we will tell 30,000,000 people about the new "Arcoflash" Radiator Heating Unit through four-color full page advertisements in the Saturday Evening Post, Good Housekeeping, Better Homes and Gardens, Country Gentleman, House and Garden, Arts and Decoration, Country Life, Garden and Home Builder, House Beautiful, Scribners, Harpers, Atlantic Monthly, Golden Book and Review of Reviews.

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1. Completely equipped—Water and Steam Boilers—with automatic regulation and all accessories.
2. Metal Jacket finished in beautiful red enamel and lined with one inch improved asbestocel.
3. Large grate area and fuel carrying capacity insure long firing periods and ease of attention.
4. Ample heating surface and reverse flue travel, especially designed for household boiler, insure quick heating responses and an excellent degree of fuel economy.
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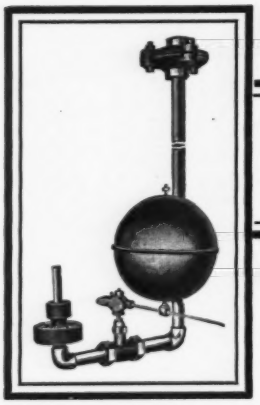

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CELLAR DRAINERS

Built to solve any draining problem and do the job with the greatest economy. Operates either with steam or live water and uses a minimum for perfect results.

Climax Test Plugs too will save you time and money.

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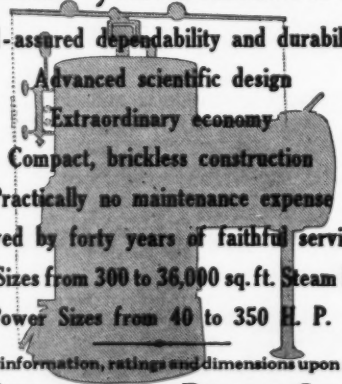
FITZGIBBONS STEEL BOILERS
"The Boiler you can afford to own"



Steel-assured dependability and durability
Advanced scientific design
Extraordinary economy
Compact, brickless construction
Practically no maintenance expense
Proved by forty years of faithful service
Heating Sizes from 300 to 36,000 sq. ft. Steam Rating
Power Sizes from 40 to 350 H. P.

Complete information, ratings and dimensions upon request

FITZGIBBONS BOILER CO.
INCORPORATED
570 Seventh Ave., New York, N. Y.

foot of steam radiation will emit approximately 240 B.t.u. per hour, the 1,400 square feet will emit $1,400 \times 240 = 336,000$ B.t.u. per hour.

The small boiler, B-1, will operate at an efficiency of 63 per cent. Therefore, the number of heat units required in the coal fired per hour will be $\frac{336,000}{63} \times 100 = 534,000$ B.t.u., and if the coal has a heat value of 12,000 B.t.u. per lb., the pounds to be fired per hour will be $534,000 \div 12,000 = 44.5$ lb.

Considering now the larger boiler, B-6, operating at an efficiency of 72.5 per cent, we find that the total number of heat units required to feed the boiler will be $\frac{336,000}{72.5} \times 100 = 463,000$ B.t.u., and assuming the same heat value for the coal, the pounds to be fired per hour will be $463,000 \div 12,000 = 38.5$ lb. This is a difference of $44.5 - 38.5 = 6$ lb. per hour. You can realize that over an entire heating season this will amount to quite an item for fuel expense, and if the life of the boiler is taken into consideration, the additional cost for the larger boiler will be saved many times in fuel consumption cost. Another time, when I call, I'll bring with me some figures on economics covering an actual installation and show you how very important this subject of boiler efficiency becomes when the problem is viewed from a seasonal operating economics viewpoint.

You know how this subject of boiler ratings has been discussed pro and con and how inconsistently the selection of a boiler from different catalogs is made. Sometimes you double the standing radiation when referring to a set of ratings from one catalog and then again you may add only 50 per cent, or even in another case take three times the amount of standing radiation from other catalogs.

I mention this to drive home the fact that, unless you know the basis of boiler ratings, you are not in a position to compare boilers on a square foot of radiation basis. For example, let us refer again to boiler curves of Fig. 6 and I'll show you how easy it is to establish two sets of ratings for this series of boilers and how either set may be made on a perfectly logical basis.

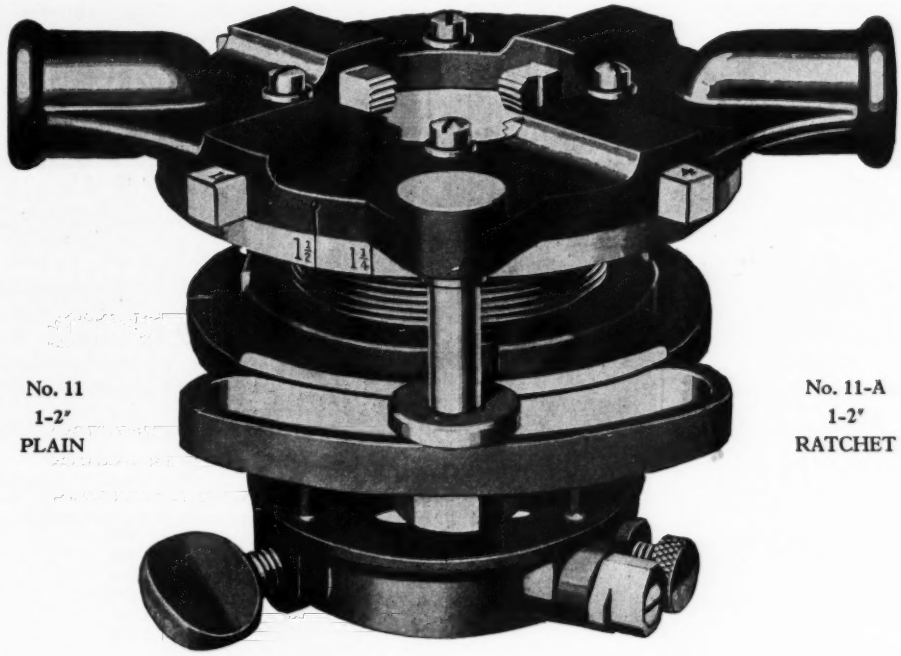
Let us take boiler efficiency as the basis and say that each boiler must develop no less than 70 per cent efficiency at its rating. We may then read the nearest even boiler output for each of the efficiency curves at this 70 per cent efficiency, and we would obtain a set of boiler ratings as I have here tabulated in Table 5.

Table 5
Boiler Ratings, Series B
Basis: Boiler develops an efficiency of 70 per cent at rating.

Boiler No.	Equivalent Sq. Ft. of Direct Radiation, Steam
B-1	700
B-2	900
B-3	1,100
B-4	1,400
B-5	1,600
B-6	1,800

Let us now take as the basis, the maximum equivalent boiler output as developed during the tests of each of the boilers of the series, and we would have a set of ratings as I have tabulated in Table 6. For comparison, I have listed in the last column of this table, the boiler efficiency at which each respective boiler would operate when developing its rating.

If you will now compare the ratings as shown in these Tables 5 and 6, you will see how important it is that you study your boiler selection further than by merely con-



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Light in Weight

Easy Working

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Low in upkeep cost.

Better Threads — Leak-Proof Joints

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Low in Price

Never before have we produced a die stock that has met with such instantaneous and widespread approval and acceptance as the New No. 11 Beaver (1 to 2″)—and its companion ratchet No. 11-A.

These new Beavers came on the market at a time (June 1, 1928) when Plumbing and Heating Contractors were beset with cost and profit problems. Any means to lower costs was welcomed—and in these new Beavers, contractors found the advantages which gave definite assurance of forever stopping a costly loss of time—and a means of reducing an item of upkeep to the lowest possible minimum.

No. 11 and 11-A Beavers have proved their case—and any contractor who wishes to improve his methods to increase his profits, may try either No. 11 or 11-A for 10 days at our expense—and prove to himself that these new Beavers are the most profitable investment he ever made.

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Send me the No.....to try for ten days at no expense to me whatever. If I like it I'll keep it—if not, back she goes to you.

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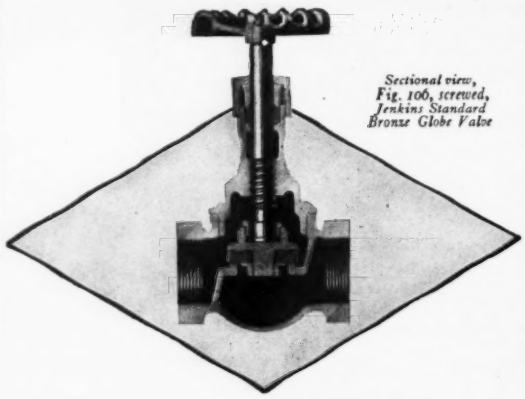

Sectional view, Fig. 106, screwed, Jenkins Standard Bronze Globe Valve

A wrench talks louder than mere words

Fig. 112 Jenkins Bronze Hose Angle Valve

Fig. 352 Screwed, Jenkins Standard Bronze Swing Check Valve

Fig. 370 Screwed, Jenkins Standard Bronze Gate Valve

It always pays a plumbing and heating contractor to take nothing for granted about the equipment his men install. The confidence and good will of his customers are at stake.

Get a wrench and take a Jenkins Valve apart. See for yourself how the inside of the body is formed to permit unobstructed flow when open, how the seat and disc insure tightness when closed. See for yourself how smooth and true is the threading, how ample the packing space in the stuffing box, how heavy and rigid is the spindle.

Examine one Jenkins, picked at random, or examine two or three. You'll find that the Jenkins "Diamond" on the *outside* of a valve is a sure sign of quality *inside*.

Make sure your men know this mark, and see it on the valves they install.

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JENKINS BROS., LIMITED
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Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

sidering a catalog rating, as for example, boiler B-5 of this series shows a difference of 900 square feet in its capacity.

Table 6

Boiler Ratings, Series B
Basis: Maximum Output as Developed by Test

Boiler No.	Equivalent Sq. Ft. Direct Radiation, Steam	Boiler Efficiency Per Cent
B-1	1,400	63.5
B-2	1,600	63.5
B-3	1,800	63.5
B-4	2,200	59.0
B-5	2,500	57.5
B-6	2,800	57.5

From these curves of Fig. 6, we might make a still further comparison by taking a definite firing period as the basis. For example, suppose we select a ten-hour firing period. We will then obtain a set of ratings as shown in Table 7.

Table 7

Boiler Ratings, Series B
Basis: Firing Period, 10 Hours

Boiler No.	Equivalent Sq. Ft. of Direct Radiation, Steam	Boiler Efficiency Per Cent
B-1	630	70.0
B-2	850	70.0
B-3	1,050	70.0
B-4	1,280	70.0
B-5	1,500	70.0
B-6	1,800	70.0

"Say," interjected the heating contractor, "now I know why I've always had a satisfied customer whenever I've taken your advice and purchased the boiler you advised, although it did cost me a little more. Believe me, but this has sure been an interesting and profitable interview this morning. The lunch is on me, come on, let's eat."

What a Welder Should Know About Metals

(Continued from Page 20)

Fracture.—Crystalline, color like nickel.

Blowpipe.—Flows clearly without sparkling; heavy black scale.

Lead

Uses.—Used mostly as heavy sheet for lining purposes, or as a pipe.

Appearance.—White when freshly cut; dull gray on exposure. Very heavy. Very soft. Bends easily.

Blowpipe.—Melts at very low temperature. Melted metal covered with thin slag coating.

Die Castings

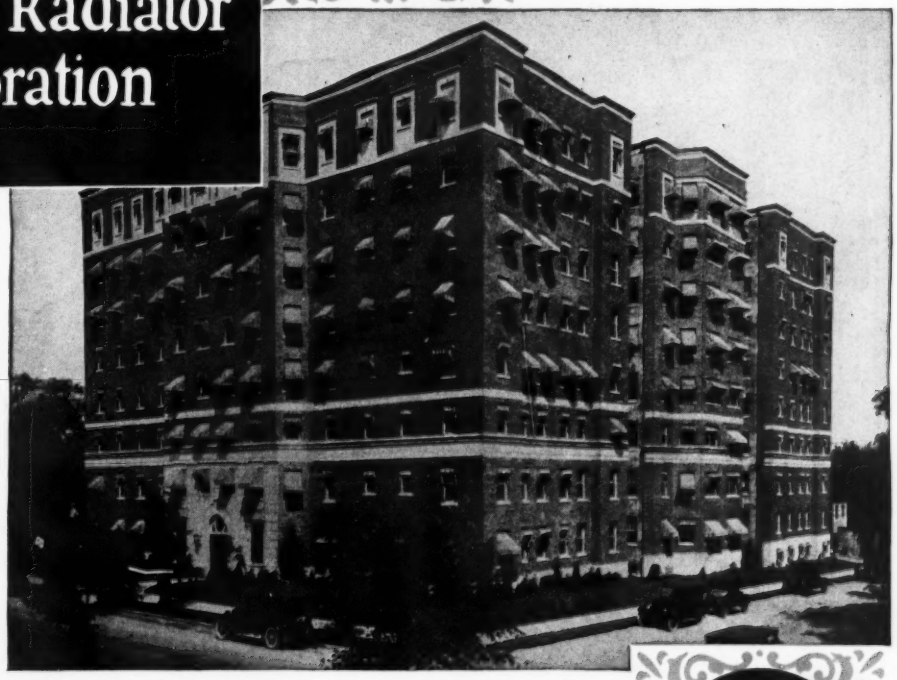
Appearance.—Die castings are usually alloys of zinc, aluminum and tin. They are light in weight, generally white in color (like aluminum), and frequently of intricate design. Die cast surface is very much smoother than that of a casting made in sand, almost as smooth as a machined surface. No tool marks can be distinguished, however.

Occasionally a die casting darkened by use may be confused with the malleable iron when judged simply by appearances. The die casting is, however, lighter in weight and softer than malleable iron.

Blowpipe.—Die castings can be recognized by low melting temperature. The metal boils under the oxy-acetylene flame, which is too hot for welding these alloys. With a flame of lower temperature, a die casting after thorough cleaning, can sometimes be welded with tin as a filling metal.

If necessary, the die cast part can be used as a pattern to make a new brass casting.

What you can expect from the National Radiator Corporation



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Architect: Harvey Warwick.
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Performance, conclusively demonstrated over a period of years, on diversified heating applications of every character.

Service that gives new meaning to a much-abused word.

These things you can expect, and will receive, when you use National Radiator Products. Products which comprise the outstanding achievements of six great companies, backed today by a united responsibility, and widely distributed through a great chain of plants, offices and warehouses.

In "National Radiator Products," you can expect quality, service, and satisfaction for your customers, and yourself.

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Cleveland, Ohio—935 E. 63rd St.
Cincinnati, Ohio—Spring Grove & Elmira Ave.
Indianapolis, Ind.—431 W. Georgia St.
Johnstown, Pa.—221 Central Ave.
Milwaukee, Wis.—124-130 Jefferson St.
New York, N. Y.—55 W. 42nd St.
Omaha, Neb.—108-112 S. Tenth St.
Philadelphia, Pa.—121 N. Broad St.
Pittsburgh, Pa.—1509 Arrott Bldg.
Richmond, Va.—3032 Norfolk St.
St. Louis, Mo.—1042 Central Industrial Ave.
Washington, D. C.—2205 Fifth St., N. E.

AND NOW!

CAPITOL

BRASS UNIONS

Made in 7 SIZES

FROM 3/8" TO 2" INCLUSIVE

NOW you can secure Brass Unions made by Capitol —another quality product added to the already large line of Capitol plumbers' brass goods. Made of high quality red brass, octagon pattern, heavily constructed and carefully machined. Specify Capitol Brass Unions in your next order to your wholesaler.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN

Hot Water Circulation Systems for Small Houses

(Continued from Page 32)

nection above the tee will result in an air pocket being formed as indicated in Fig. 5. This, in time, will fill with air and prevent circulation.

All that it is necessary to remember in connection with grading lines for circulation use is that all piping from the tank to the high point on the system must slope up toward the high point and that all piping beyond the high point must slope down toward the tank. There may be structural conditions which prevent the making

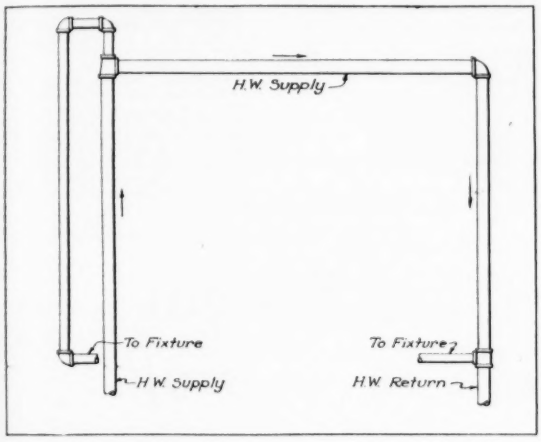

Fig. 7

of this pitch a continuous slope in some cases and, while a continuous and uninterrupted pitch is thoroughly desirable and should be secured wherever possible, systems can be installed where the pitch is not continuous.

An example of this is shown in Fig. 6 where a joist interferes with the proper grading of the cross connection forming the top of the loop. Here the line was dropped down under the joist giving two high points, each of which is air vented through the fixture outlet. The supply and return risers from the cellar will furnish sufficient circulation head to pull the water across the pocket in the top of the loop provided that all high points are adequately air vented.

Conditions also may be encountered where no fixtures are located above the highest point in the line so that air venting cannot be secured through the outlet of a fixture above. In this case, a fixture below the line can be used in the manner shown in Fig. 7. The fixture branch is taken off of the top of the circulation line so that the air will rise up into the fixture branch and there collect, being blown out by water pressure every time the fixture outlet is used. On the basis of economy circulation lines should always be covered.

The prevention of dust is important, because dust, by irritating the mucous membranes, renders them especially susceptible to infections such as colds, bronchitis, etc. Dust in the air is mainly from two sources: The fine dust of ashes and soot emitted from chimneys being one, and dust from streets and buildings being the other. Experiments show that in certain sections of Chicago the dust fall amounted to from 250 to 350 tons per square mile per month, in the winter months, and only half that much in the summer, as shown by measurements taken at 20 observation stations.

YOUR FITTING PROBLEM IS SOLVED *when you say* "SQUARE GEE'S"

SQUARE Pipe

"GEE" Fittings

DRAINAGE, BRASS

MALLEABLE, CAST IRON

THE GRABLER MANUFACTURING CO.
and its subsidiary GRABLER-REPUBLIC, Inc.
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San Francisco • Los Angeles
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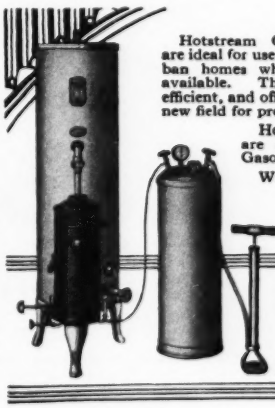
"DURO" LAVATORY FAUCETS

are designed, by Wolff, for that type of customer who must have distinctive products in his home. They give this customer that satisfaction which means more business for you.

WOLFF CO.
"Superior Plumbing Products"
CHICAGO

KEWANEE
STEEL Riveted
BOILERS
for Lower Heating Costs

KEWANEE BOILER CORPORA
Kewanee, Illinois



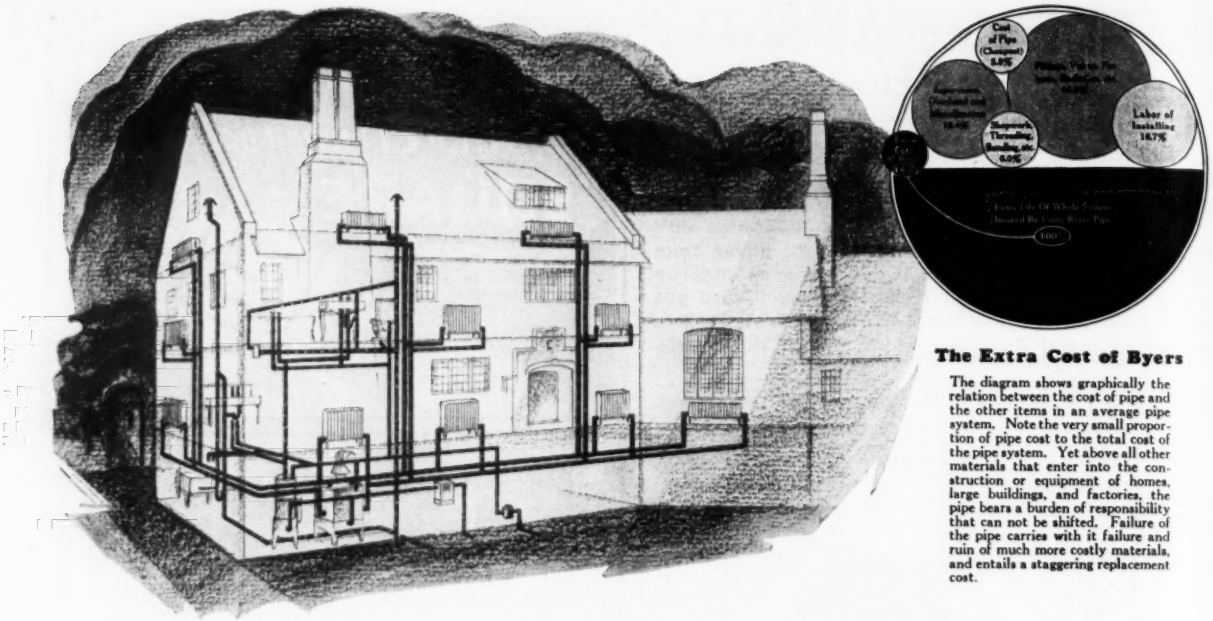
Hotstream Gas-Pressure Heaters are ideal for use in country and suburban homes where city gas is not available. They are rapid and efficient, and offer the Plumber a vast new field for profitable business.

Hotstream Double Copper Coil Heaters are used, with the Coleman Patented Gasoline Burner.

Write for complete information.

THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat"
Cleveland, Ohio

HOTSTREAM GAS PRESSURE HEATERS



The Extra Cost of Byers

The diagram shows graphically the relation between the cost of pipe and the other items in an average pipe system. Note the very small proportion of pipe cost to the total cost of the pipe system. Yet above all other materials that enter into the construction or equipment of homes, large buildings, and factories, the pipe bears a burden of responsibility that can not be shifted. Failure of the pipe carries with it failure and ruin of much more costly materials, and entails a staggering replacement cost.

When Selling a Plumbing System
.... *sell satisfaction at a profit!*

IT is easier to sell a good and lasting piping system than it is to sell an ordinary one, because the better pipe material will result in more permanent satisfaction, add to your own reputation as a plumbing contractor and allow you a considerably greater profit.

You know the durability, the rust-resisting qualities and the ease of cutting and threading genuine wrought iron pipe. You know that wrought iron pipe will give at least twice the length of service of ordinary pipe—investigations have proved it. You know also that the use of Byers Pipe adds only a very small percentage *to the cost of the entire piping system installed.* And you know that your profit margin will be considerably greater.

The specification of Byers Pipe, therefore, obtains a ready welcome. The lasting qualities of Byers Pipe add immeasurably to the life of the system and avoid those frequent, annoying and costly replacements that cheaper pipe is known to cause.

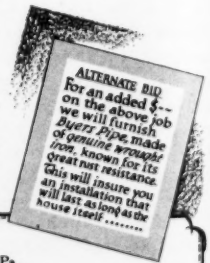
The simplest way to recommend Byers Pipe is to include it as an alternate bid. For this purpose, a supply of alternate bid labels will be furnished you on the return of the coupon below. You simply paste one on each piping bid, indicating the small extra cost if Byers Pipe is used. Try it on your very next bid. You'll be glad you did.

• • • • •

A. M. BYERS COMPANY
Established 1864 Pittsburgh, Pa.

the *Spiral Stripe* protects you against mistakes and substitution
Also look for name and your rolled in metal

BYERS PIPE
GENUINE WROUGHT IRON



A. M. BYERS CO.,
Dept. D-11, Pittsburgh, Pa.
Without cost to me, please send me..... Byers Alternate Bid Labels for use on all piping estimates. Also your free book, "The Installation Cost of Pipe."
I am a.....
(plumber or heating contractor)
Name.....
Address.....

THIS WEEK

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

HAS JUST BEEN INCORPORATED

The Valley Plumbing & Heating Supply Co. of Menasha, Wis., has just been incorporated with a capital of $50,000, to deal in plumbing and heating supplies. The incorporators are Ben Plowright, Frank Pankratz and Harry E. Bullard.

TO BUILD MIDWESTERN FACTORY AT CLEVELAND

The Chase Brass & Copper Co., Waterbury, Conn., announced recently that it would erect a midwestern plant in Cleveland, Ohio. Location of the site, the number of workers to be employed, and other details of the decision have been left to a future date, according to F. S. Chase, president of the company.

BUILDS NEW ADDITION

The McAlear Mfg. Co., 1901-09 South Western avenue, Chicago, has just about completed the construction of a new addition to its plant at the above address, which substantially increases its production capacity. The old plant and office quarters have also been remodeled, bringing them up to date in every respect. James McAlear is president of the company.

CURTAIN MAKER ADDS TO PLANT

The K. C. Rubber Co., Inc., 752 Broadway, Bayonne, N. J., maker of shower curtains, is adding to its factory in order to make extensive additions to its line. The company plans to manufacture cretonne, rayon, satin and silk rubberized curtains.

STREET & KENT MFG. CO. CELEBRATES 40TH ANNIVERSARY

C. D. Street, president and one of the founders of the Street & Kent Mfg. Co., Chicago, entertained the department heads and old employes of the company with a banquet at the Edgewater Beach Hotel on Monday evening, October 22. The banquet was given in celebration of the 40th anniversary of the founding of the Street & Kent Mfg. Co.

The company has made steady strides since it first commenced operations and six years ago moved into its new plant at 1954-64 Clybourn avenue. The building is of modern mill construction, with a steel truss roof, fireproof foundry, switch track facilities, and 28,558 square feet of floor space.

MOVE GENERAL OFFICES TO PLANT

The general offices of the Providence Fittings Co. have been removed from Boston, Mass., to the company's factory in Lexington, Mass. As formerly announced, the sales offices were recently located at 20 West Forty-third street, New York City.

TO MOVE TO NEW ADDRESS

The Power Efficiency Corp., Buffalo, N. Y., will open new offices November 12 in the Liberty Bank building, where will be located the general offices, bookkeeping, engineering and contracting departments. The industrial supply department, fabricating sheet metal shop and warehouse will remain at 137 Arthur street, the former location of the offices.

MANUFACTURERS' REPRESENTATIVES IN NEW LOCATION

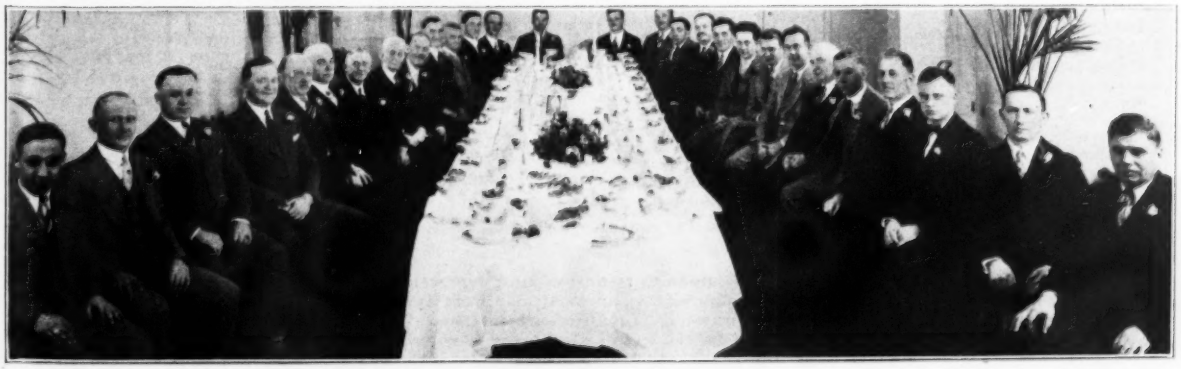
Derbyshire, Mack & Morgan, Inc., manufacturers' agents of Philadelphia, announce the removal of the concern's offices on November 1 to Room 505, Bailey Warehouse, Delaware avenue and South street, Philadelphia.

APPOINTED DISTRIBUTOR IN EASTERN TERRITORY

The Duro Co. of New York, 50 Church street, New York City, has taken over the distribution in the eastern territory for storage water heaters manufactured by the Motor Wheel Corporation of Lansing, Mich.

OPEN FOURTEEN BRANCH OFFICES

The Thermal Unit Co., Chicago, has been expanding its distribution through the efforts of F. H. Ruoff, who has been traveling in the South, Central West and East in an effort to open branch sales offices. Fourteen new branch offices were recently opened. They are as follows: To-



Banquet given by C. D. Street in celebration of the fortieth anniversary of the founding of the Street & Kent Mfg. Co.

ledo, Ohio, 810 Spitzer building; Cincinnati, Ohio, 2413 Union Central building; Dayton, Ohio, 915 Riebold building; Cleveland, Ohio, 1375 Euclid avenue; Detroit, Mich., 806 Donovan building; Grand Rapids, Mich., 201 B. F. Keith building; St. Louis, Mo., 308 Rialto building; Minneapolis, Minn., 332 McKnight building; Memphis, Tenn., 1348 Madison avenue; Pittsburgh, Pa., Fulton building; Buffalo, N. Y., 327 Elliott Square building; Rochester, N. Y., 716 Terminal building; Philadelphia, Pa., 254 South Fifteenth street; Boston, Mass., 239 Causeway street.

Common Figures Studied In Harvard Report

THE following is taken from the study made by the Harvard Bureau of Business Research of the operating expenses of plumbing and heating supply wholesalers in the Central States for the year 1927. The survey was made in co-operation with the Central Supply Association, which furnished all the funds to defray the cost. As mentioned in an earlier issue, the wholesalers in this district reporting to the Harvard bureau commonly secured a gross margin of 20.2 per cent of net sales, had typical total expense, including interest, of 20.8 per cent, and, on the average, suffered a net loss of 0.6 per cent of net sales.

The accompanying table shows the common or typical percentage figures for all firms reporting, and also the interquartile figures for each item.**

The interquartile figures, shown in the column at the right in the table, represent the upper and lower limits of the middle half of the figures for each item when arranged

Common 1927 Figures for 134 Wholsalers

Net Sales = 100%

Item	Common Figures			Interquartile Range* (Middle 50% of Figures) From	To
Gross Sales			105.0%		
Returns and Allowances to Customers		3.6%		2.70%	4.47%
Cash Discounts Allowed to Customers		1.4	5.0	1.13	1.66
NET SALES			100.0%		
Net Cost of Merchandise Sold			79.8	78.12	81.85
GROSS MARGIN			20.2%	18.20	21.80
Operating Expenses:					
Salesforce Salaries, Commissions, and Bonuses	3.4%			2.37	4.09
Salesforce Travelling Expense	1.6			0.73	2.27
Total Salesforce Expense		5.0%		3.62	6.18
Advertising		0.3		0.14	0.47
Other Miscellaneous Selling Expense		0.2		0.07	0.28
Warehouse, Store, Receiving, and Shipping Wages		2.3		1.50	2.68
Warehouse, Store, Receiving, and Shipping Supplies		0.15		0.07	0.19
Outward Cartage to Shops, Jobs, and Depots	1.05%			0.58	1.47
Outward Freight and Express	0.15			0.00	0.39
Total Delivery Expense		1.2		0.69	1.74
Executive Salaries		2.3		1.38	3.30
Office Salaries and Wages		2.7		1.84	3.30
Office Supplies, Postage, and Stationery		0.4		0.31	0.55
Telephone and Telegraph		0.25		0.18	0.30
Rent		1.6		1.13	1.90
Heat, Light, Power, and Water		0.2		0.13	0.27
Taxes		0.4		0.20	0.53
Insurance		0.25		0.13	0.37
Repairs and Depreciation		0.2		0.09	0.31
Losses from Bad Debts		0.55		0.23	0.80
Legal and Collection Expense		0.15		0.04	0.20
Dues, Subscriptions, and Contributions		0.2		0.09	0.30
Miscellaneous		0.35		0.19	0.47
Total Expense before Interest		18.7%		15.90	21.60
Interest on Borrowed Capital	0.5%			0.18	0.90
Interest on Owned Capital	1.6			1.16	2.27
Total Interest		2.1		1.45	2.56
TOTAL EXPENSE			20.8	17.90	23.50
NET PROFIT OR LOSS		*Loss*	*0.6%*	*Loss 3.10*	1.90
Interest and Rentals Earned and Other Sundry Revenue			2.3	1.56	3.37
Total Net Gain:					
Percentage of Net Sales			1.7%	*Loss 0.21*	4.19
Percentage of Net Worth			3.2%	*Loss 0.85%*	9.84%
Rate of Stock-turn (times a year)			4.0	2.80	5.30
Percentage of Brokerage Sales to Total Sales			3.0%	0.00%	7.32%

*Neither all the low nor all the high figures of the interquartile range are from any one firm, of course; consequently they cannot be totalled.

**The term "common figure" is used by the Bureau to mean the most representative figure in any series or array. It is not the arithmetic average of all the percentage figures for any particular item, for this type of average is easily drawn out of line by extremely high or low figures which may not be really representative. The common figure is rather the one around which the percentages for a particular item show the greatest tendency to concentrate. It is determined partly by what in statistics is known as the mode—that is, the figure which occurs most frequently in an array; and it is influenced also by the median—that is, the middle figure when the items are arranged in order of magnitude; and by the interquartile average, which is the arithmetic average of the middle half of the figures.

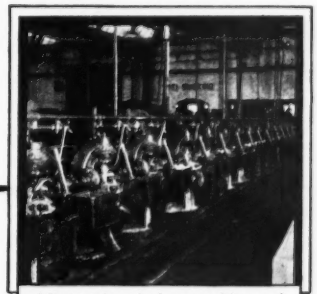
ACCURACY *of Threading*

in Stockham Fittings results from the accuracy of each preceding operation, starting with the selection of the raw metal by expert metallurgists. Perfect patterns assure uniform castings, a characteristic essential for accurate thread alignment. Every detail in Stockham manufacture lays emphasis on the value of accuracy—which makes Stockham Fittings save time and money on the job.

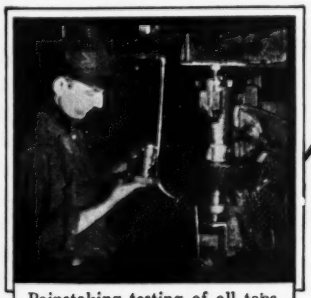
All taps and dies are made in our own fully equipped modern machine shop

Because of accuracy in setting up tapping machines, threads are exactly the same depth

Skilled toolmakers only are entrusted with the making of Stockham taps and dies

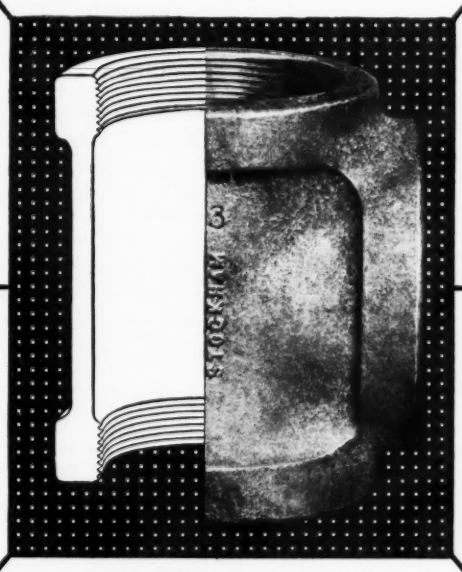


All tapping is by machines of precision, which assure accuracy of threads and alignment



Painstaking testing of all taps and dies before being used is a safeguard on accuracy

Test of thread. Metallurgical control assures machinability, essential for accurate threads.



Stockham Fittings are sold only through the jobber—the man who best knows your needs, doesn't overstock you, always has ample supply and is always to be relied on. Catalog on request.

STOCKHAM PIPE & FITTINGS CO.
BIRMINGHAM, ALA.

Warehouses

BOSTON NEW YORK CHICAGO LOS ANGELES

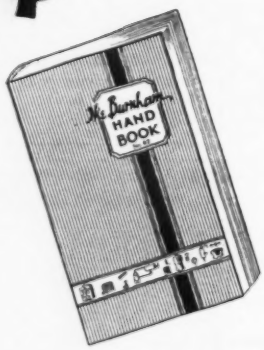
CAST IRON
Screwed *Flanged* *Drainage*

MALLEABLE
Standard *Extra Heavy*
Oil Country Malleable

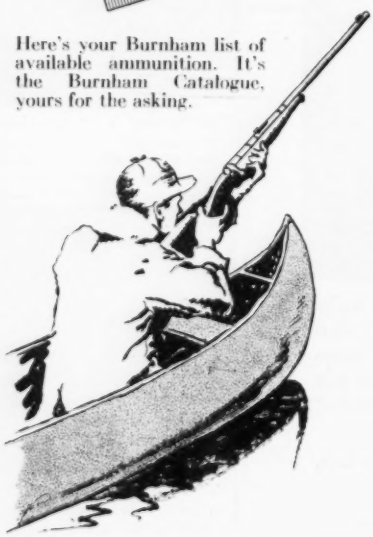
ELECTRIC CAST STEEL
Flanged *Screwed*

STOCKHAM FITTINGS-

Go Loaded for Moose With Burnham Boilers



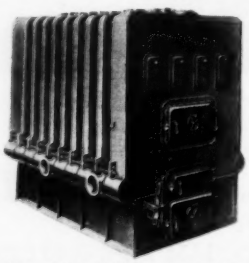
Here's your Burnham list of available ammunition. It's the Burnham Catalogue, yours for the asking.



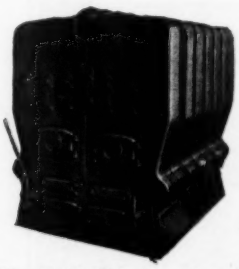
JUST because you have been doing a land office business with the smaller size Burnhams, intended for home heating and general uses, don't forget the big game you can get with Burnhams.

There's as much thrill in bringing down a big heating contract with a Burnham Big Twin or 36 inch Tube Type, as there is in bagging a moose when you're out for duck.

There's sure fire ammunition for both large and small game hunting, in your list of Burnhams for every heating and hot water supply purpose.



The 36-inch Tube Type is a sectional. It starts where the average boiler finds the going hard.



Big Twin Burnham has a capacity up to 16,550 square feet in steam, 27,000 square feet in water.

Burnham Boiler Corporation

IRVINGTON, N. Y.

Representatives in all principal Cities of the United States and Canada

in the order of their magnitude. The extreme figures for each item are seldom representative and hence are not given. The interquartile range, however, enables any wholesaler to determine whether his own percentage figure for any particular item was in the middle half of the figures for all firms reporting, or whether it was above or below the limits of this "interquartile" group.

The figures are based on Net Sales as 100%†, the Net Sales figure, as may be seen, being the Gross Sales less Returns and Allowances and Cash Discounts Allowed to Customers, which together commonly made up 5.0% of Net Sales. Of the 100% remaining as actual Net Sales, 79.8% was required for the Net Cost of Merchandise Sold. This figure of 79.8% included the actual cost of merchandise purchased, plus incoming freight, express, and cartage. Cash discounts received on purchases of merchandise were deducted from the cost of purchases in order that the remaining figures might represent the actual cost of the purchases. All expenses incurred in the operation of pipe shops were also included in the net cost of merchandise sold, inasmuch as these pipe shop expenses were a necessary part of the cost of bringing the merchandise to the point of sale, rather than an expense of selling or distributing it.

The amount remaining after deducting the total cost of merchandise sold from the net sales is the Gross Margin. For the 134 plumbing and heating supply wholesalers reporting for 1927 this Gross Margin figure commonly amounted to 20.2% of the net sales. It is from the Gross Margin, obviously, that the operating expenses of the business must be met and the net profit, if any, obtained.

The common figures for operating expenses, as classified in accordance with the bureau's standard form of operating statement for plumbing and heating supply wholesalers, are as shown in the table.

It will be seen that the largest single item of expense was for Salaries, Commissions, and Bonuses of Salesforce, which commonly amounted to 3.4% of the net sales. This, together with the typical figure of 1.6% for Salesforce Travelling Expense, made a total of 5.0% for Total Salesforce Expense.

The three next highest expenses are also salary and wage items. Warehouse, Store, Receiving, and Shipping Wages amounted on the average to 2.3% of net sales, Executive Salaries to 2.3% and Office Salaries and Wages to 2.7%. These three items, together with the Salesforce Salaries, Commissions, and Bonuses, made up a total of 10.7%, or over one-half of the total expense. The only other expense items, with the exception of interest, which constituted more than 1% of the net sales, were Outward Cartage to Jobs, Shops, and Depots, which commonly amounted to 1.05%, and Rent, for which the typical figure was 1.6% of net sales. It should also be noted here that approximately one-half of the expense for Outward Cartage was for wages of drivers and helpers. The remaining expense items, while individually small, make up a substantial amount, and each deserves careful scrutiny. A small saving in a few small items can often mean the difference between a loss and a profit in the final result for the year.

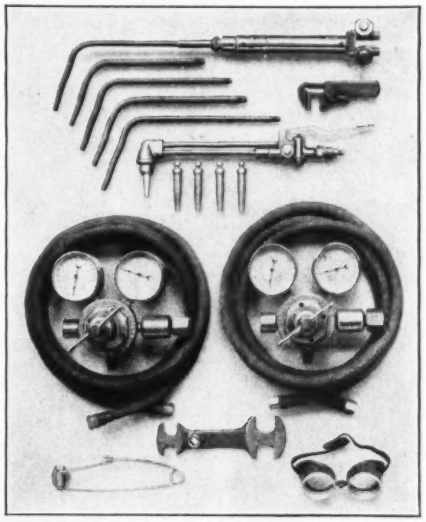
The sum of the expense percentages prior to the inclusion of interest was 18.7%, thus leaving a net profit before interest of 1.5% of net sales (20.2%—18.7%). Interest on Borrowed Capital commonly amounted to 0.5%; this, plus the typical figure of 1.6% for Interest on Owned Capital, made a total of 2.1% for Total Interest, thus bringing the final Total Expense to 20.8% of net

†Except the figures for Net Gain to Net Worth and Rate of Stock-turn.

FOR YOUR CONVENIENCE

We have made up this combination outfit No. 8888 for your pipe cutting and welding work. It meets your every pipe fitting need, at low cost.

WRITE TO THE NEAREST DISTRICT OFFICE FOR INFORMATION



AIR REDUCTION SALES COMPANY

Manufacturers and distributors of Airco Oxygen, Airco Acetylene, Airco-National Carbide Airco - Davis - Bournonville Welding and Cutting Apparatus and Welding Supplies

Baltimore, Birmingham, Boston, Buffalo, Charlotte, N. C., Chicago, Cleveland, Dayton, Detroit, Emeryville, Calif., Jersey City, Los Angeles, Milwaukee, Minneapolis, Oklahoma City, Philadelphia, Pittsburgh, Richmond, Seattle, St. Louis, Wheeling

Home Office: **342 Madison Ave., New York City, N. Y.**

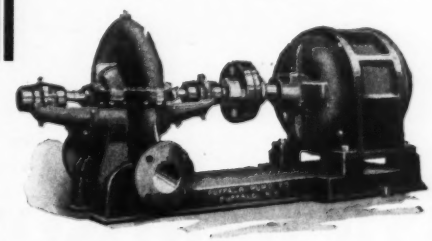
66 Plants **21 District Offices**

Guaranteed Performance

"Buffalo" Pumps are tested for the actual conditions under which they are to operate. This guarantees that a "Buffalo" Pump will actually perform on the job the work for which it was originally purchased.

The experience of large users, as measured by repeat orders, confirms the complete dependability of "Buffalo" Pumps.

Let us quote on your next order.

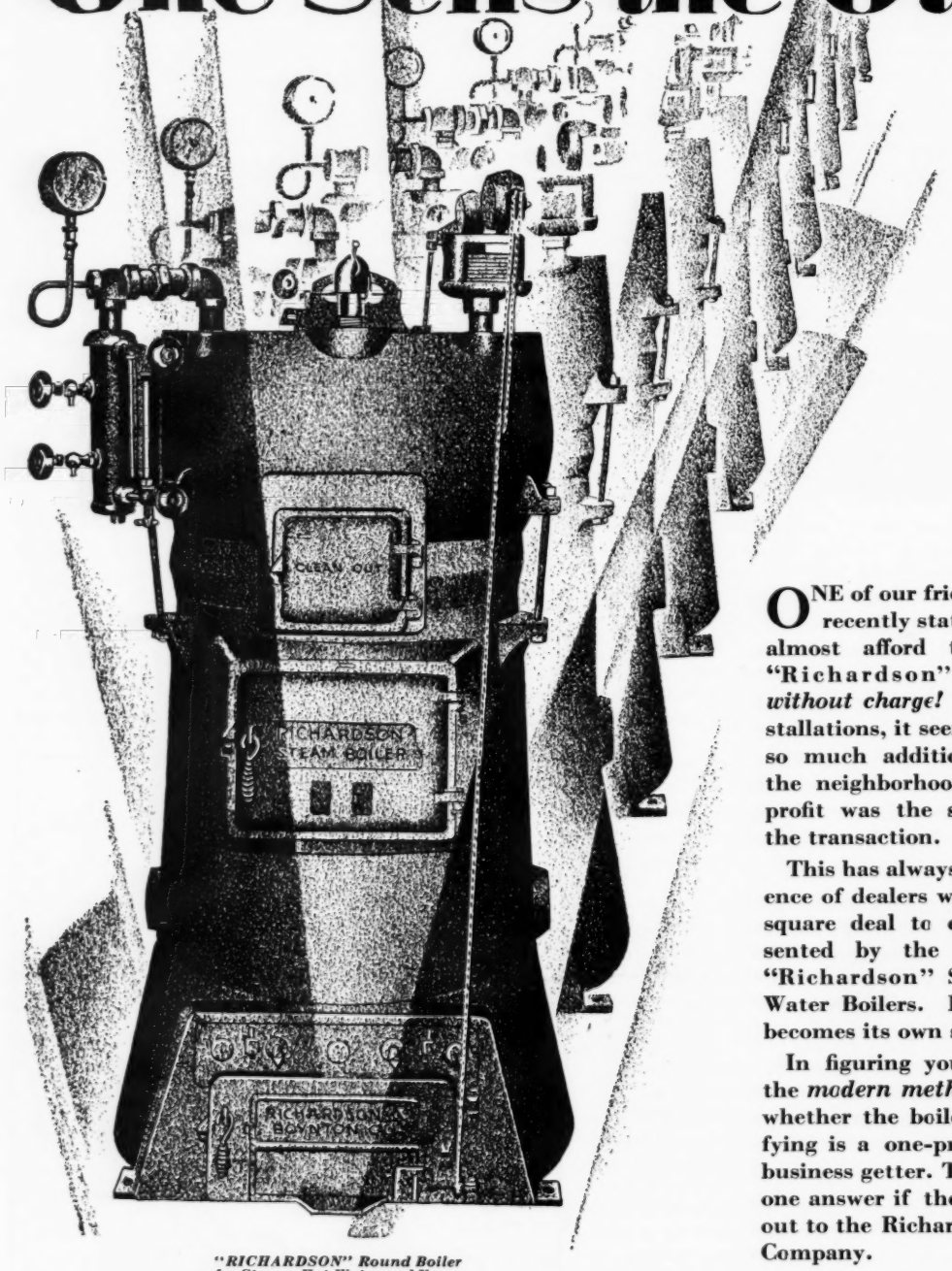


BUFFALO STEAM PUMP CO.

483 Broadway :-: Buffalo, N. Y.

In Canada:
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

One Sells the Other



"RICHARDSON" Round Boiler for Steam, Hot Water and Vapor

ONE of our friends in the trade recently stated that he could almost afford to install some "Richardson" Round Boilers *without charge!* Many of his installations, it seems, have brought so much additional business in the neighborhood that the first profit was the smallest item in the transaction.

This has always been the experience of dealers who believe in the square deal to customers represented by the low ratings of "Richardson" Steam and Hot Water Boilers. Every boiler sold becomes its own spokesman.

In figuring your next job, use the *modern method.* Ask yourself whether the boiler you are specifying is a one-profit boiler or a business getter. There can be only one answer if the order is made out to the Richardson & Boynton Company.

This Company believes in utmost protection to the dealer—the logical link between factory and consumer.

RICHARDSON & BOYNTON CO

Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837

260 Fifth Ave. New York City

New York Utica Newark Philadelphia Boston Chicago Buffalo Minneapolis Cincinnati Pittsburgh Detroit Providence

sales (18.7+2.1%). This figure exceeded the Gross Margin by 0.6%, the common Net Loss figure.

As the interest charged on owned capital and a part of the rent charged on owned real estate were not actual disbursements, however, these items were credited back as interest and rentals earned; these earnings, plus other sundry revenue, commonly amounted to 2.3%. This considerably more than offset the Net Loss of 0.6%, so that a final figure for Total Net Gain of 1.7% of net sales was shown. This Total Net Gain was also expressed as a percentage of net worth, since many firms prefer to think of their earnings as a percentage of their investment rather than of their net sales. Expressed in this way the Total Net Gain commonly was found to be 3.2% of the net worth, the net worth being the actual net investment of the owners in the business.

The common figure for rate of Stock-turn was 4.0 times a year. The rate of stock-turn for each firm reporting was computed by dividing the cost of merchandise sold by the average inventory.

The final figure in the table shows the common percentage of "brokerage" sales to total sales. "Brokerage" sales is a term which has been used to describe those carload and other direct shipment sales which are made on a very small gross margin—virtually a brokerage commission. It does not refer to direct shipments on which the full gross margin is obtained. The percentage of these brokerage sales to total sales varied widely, as may be seen from the interquartile range figures; the most typical figure, however, appeared to be about 3%.

Content of Certain Expense Items

Most of the operating expense items are self-explanatory. For a few of the headings, however, it will be desirable to explain briefly the make-up of the items as determined in accordance with the standard classification of accounts worked out by the Bureau. The heading of Warehouse, Store, Receiving, and Shipping Wages does not include the wages of laborers employed in the pipe shop or other manufacturing departments, since, as already stated, these charges are included as a part of the net cost of merchandise sold. The item of Outward Cartage to Shops, Jobs, and Depots includes that proportion of the total cartage expense which was incurred for outward transportation of merchandise only, not for transportation of incoming merchandise. The cartage expense itself included all items incurred in the operation of cartage equipment, such as wages of drivers and helpers, operating supplies used, rent of garage space, repairs, depreciation, insurance, and licenses on delivery equipment, and also the expenses of hired teams or trucks. The Bureau's procedure with regard to the item of Rent is to include under that heading not only the rent actually paid out for the use of leased real estate, but also a fair rental charge for owned real estate, which includes the actual expenses incurred on such owned real estate for taxes, insurance, repairs, and depreciation, and interest both on real estate mortgages and on the owner's equity, and also such additional amount as the owner could reasonably expect to obtain if the property were leased to an outsider.

From the foregoing definitions of the items of Cartage and Rent it will be seen that the amounts shown under the headings of Taxes, Insurance, Repairs, and Depreciation represent only the expenses in those classifications which were incurred for business purposes other than in connection with real estate or cartage equipment. This procedure is necessary in order to obtain comparable figures for all the items concerned as between firms which own their real estate or their cartage equipment and those which do not.

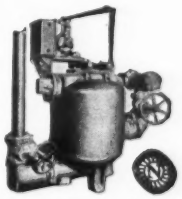
As already indicated, interest on the net investment of

$66 to $285
Harry F. Mellon, Plumber, Wilmington, Del., says:
"I always recommend the EverHot Gas Water Heater because it means a satisfied customer, and satisfied customers mean more business for me."
EverHot Heater Co.
Detroit, Michigan
Branches and Sales Offices in 61 Cities in United States and Canada

JENNINGS Sewage Ejectors are supplied for raising sewage and drainage from basements below street sewer level, where disposal by gravity is not available.

Capacities up to 1500 g. p. m.
Heads up to 50 ft.

Write for Bulletin No. 67.



Jennings Sewage Ejector

NASH ENGINEERING CO.
41 Wilson Rd., So. Norwalk, Conn.

Jennings Pumps

Watrous

Patent Plumbing Fixtures and Duojet Water Closets

A LINE representing the most advanced ideas in sanitation. Economy of operation and ease of installation. Duojet Closets—Flush Valves—Self-Closing Basin Cocks—Combination Lavatory Fixtures—Pop-Up Wastes—Liquid Soap Fixtures, etc.

Manufactured and Sold Exclusively by

THE IMPERIAL BRASS MFG. COMPANY
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FLAGG FITTINGS ARE GOOD FITTINGS

Ask the "Old Timer"

STANLEY G. FLAGG & COMPANY, Inc.
1421 Chestnut St., Philadelphia, Pa.

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EVERY AIR UNDER

FITTING TESTED WATER

Phoenix Brass Foundry
Irvington, New Jersey

BURKS
SUPER-TURBINE
PUMPS

"Only one moving part"

— A LIFE-TIME OF SERVICE! —

Dealers: Send for No. 83 Bulletin!

DECATUR PUMP COMPANY
632 E. Cerro Gordo St., Decatur, Ill.

Haas

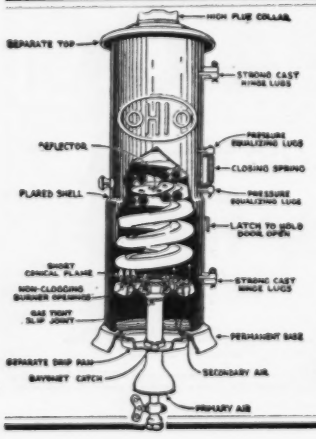
Flush Valves **for use in combination with all styles of bowls for all classes of service to operate under low or high pressure water supply.**

Water Closets **for every type or class of service.**

Frost Proof Closets. **Direct flush or after flushing.**

Write for catalog.

Philip Haas Co., Dayton, Ohio



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WATER HEATERS

Make good on the job

Ask your jobber . . . . or write us for information

OHIO HEATER COMPANY
Columbus, Ohio

the owners in a business is included as one of the expenses. This net investment is arrived at by deducting the outside liabilities from the total assets. Real estate or real estate mortgages are, however, eliminated, since interest on the net investment in real estate is included as part of the rent expense. Also, interest or dividends received on securities or other investments are deducted from the gross figure for interest on owned capital, since the owner's investment has already borne such a return.

MIAMI VALLEY GOLF ASSOCIATION CLOSES SEASON

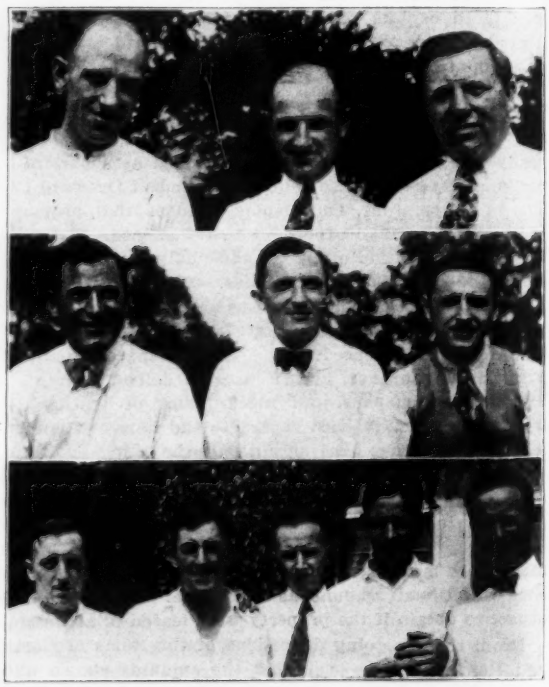
The Miami Valley Trade Golf Association held its last tournament of the season on October 9 at the Ft. Mitchell Country Club, Ft. Mitchell, Ky., with a large number of the members present.

In class A, low gross was won by B. Culbertson, with a 72, and he received as a reward a merchandise order. R. E. Peck, with a 73, was the winner of low net and received a flask. Second low net and three golf balls went to Walter Hair, who made a 77.

In Class B, the low gross prize, a golf bag, was won by H. F. Rehling, who shot a 73. John Morrison, who turned in an 80, won low net and received a lighter. Three golf balls were given Carl Kiefer for his score of 81, which gave him second low net.

Low gross in Class C was won by William Fosdick, who shot a 96 and received as a reward a golf stick. K. A. Wright, who shot a 73 for low net, and J. Morner, who took second low net in this group, each received three golf balls.

The scores for the day's play were a trifle higher than



Top row: John Callahan, manager, Brooklyn branch, John Wood Mfg. Co.; George Wamsley, Brooklyn branch, John Wood Mfg. Co., J. Finklestein, Edward Steinman Co., Brooklyn. Middle row: J. Tannenhauser of Julius Cohen, Brooklyn; Samuel Skner, New York City; M. Marcus, Ridgewood Plumbing Supply Co., Brooklyn. Bottom row: Gene Conroy, New York City, Central Tube Co.; C. E. Wilkins, Brooklyn branch manager, Stockham Pipe & Fittings Co.; H. F. Kolyer, New York City, C. F. Church Mfg. Co.; B. F. Gilmour, B. F. Gilmour Co., Inc.; C. G. Wall, New York City, Sloan Valve Co. Photos taken at the outing of the Brooklyn Plumbers Supply Credit Association

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PRESSURE GOVERNOR

for Hot Water Heating Systems Is a Real Profit Producer for You!

SAFE — SIMPLE — ECONOMICAL
UNQUALIFIEDLY GUARANTEED

THE Kainer Governor has enabled many a heating contractor to land a job that might have otherwise "gone west." If you are familiar with the Kainer Governor, you have a distinct advantage in competition, both on new jobs or remodeling.

Constructed entirely of bronze, absolutely automatic, and extremely sensitive, the Kainer Pressure Governor combines every feature of positive pressure control.

Investigate Today!

Write us for full information, or see your jobber

KAINER & COMPANY
CHICAGO
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Manufacturers of
HARDWARE SPECIALTIES

MASTERPIECES IN ART CHROME No. 6

The new Art Chrome all-metal Lavatory Fixture, with valves in wall, spout on slab and Brown Pop-Up Waste, is distinctly in the mode and out of the ordinary. Designed in good taste, beautifully finished in harmonious, everlasting chromium, constructed with the famous standardized renewable unit, installed so as to leave the top of the lavatory free for toilet articles . . . here are outstanding features that pave the way to quicker, more profitable sales.

It is also made with spout fitting (a) for lavatories with spout in the ware, and with concealed brass spout (b). Any of the above can be furnished with third valve for drinking water set in wall between HOT and COLD valves.

The new Art Chrome line of Chicago Faucets has been given a wonderful reception by architects, builders, jobbers and plumbing contractors. They are virtually unanimous in saying, "The line sells itself."

Now is the time to introduce Art Chrome Chicago Faucets to your customers. It will mean better business in 1929. A new folder, just off the press, entitled "The Final Touch of Elegance in Bathrooms and Kitchens," attractively printed in two colors, will be sent to you in quantities with your name and address imprinted.

How many shall we send you?

THE CHICAGO FAUCET CO.
2700-22 No. Crawford Ave. Chicago

ART CHROME
CHICAGO FAUCETS
Life Long Service ~ Life Long Lustre

usual, but everyone enjoyed the sociability of this last meet. The scores for the day follow:

Name	Gross	Name	Gross	Name	Gross
Robt. E. Peck..	83	Walter Mayne..	129	W. Fosdick	96
Judge Hamilton.	92	W. G. Boales...	119	C. E. Tudor.....	108
Howard Arnold.	97	Mr. Morner	110	John Morrison..	98
L. Stearns	88	Walter Hair....	89	K. Wright	97
D. Pickrel	100	H. Asmann	105	P. D. Gayman..	112
Dr. Hodlins.....	98	J. K. Peck.....	101	R. S. Crane.....	118
H. F. Rehling..	93	Mr. Hewetson...	105	Mr. Stegemeyer.	132
Carl Kiefer	103	H. Sproull.....	104	Ross Beaver....	105
B. Culbertson...	72				

THE METROPOLITAN TRADE GOLF ASSOCIATION CLOSES SEASON

The Metropolitan Trade Golf Association closed its season in a blaze of glory at the Wykagyl Country Club, New Rochelle, N. Y., on Tuesday, October 23, approximately 40 members and guests turning out for the event, and playing 36 holes of golf, despite the rain which fell.

There were really three separate competitions during the day. The first was for the Douglas Durkin trophy, and was given to the player with the best selected score of the day. L. Power of the Grabler Mfg. Co., with a 77 gross and a handicap of 8, took the handsome plaque, which was open only to those who had attended at least three meets prior to the final tourney. His closest competitor was Roger Williams of Richardson & Boynton Co., and Captain T. A. Johnson, J. D. Johnson Co., Inc., was in third place.

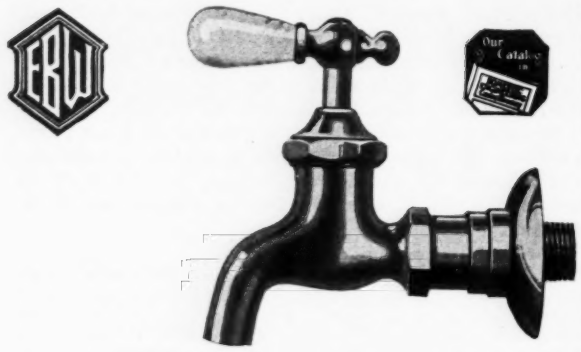
Medal play winners, with prizes based on morning 18, afternoon 18 and 36-hole handicap play, included E. F. Keating, Roger Williams, President J. Francis Murphy, Harry Leach, Henry Garrity, Joseph P. Woods, James Weaver, E. F. Conroy, Leo M. O'Neil, Thomas Larkin, Philip Platt, Fred C. Allen, T. A. Johnson, Dudley S. Warth, L. A. Rothwell, George W. Hamill, Secretary Fred W. Broatch, Thomas Dawson, A. Hassinger, Charles R. Foster, Charles Wall, C. L. (Tod) Wilkins, Lee Kelly, Henry Letcher and A. S. Armagnac.

There was a good turnout of guests and six guest prizes were awarded, the competition being a kickers' handicap. The winners were B. Harold Deacon, John Weil, T. J. McLoughlin, E. N. Goecher, Thomas Liggett and E. S. Atkins.

The medal scores follow:

Player	A. M. Gross	P. M. Gross	Hdcp.	A. M. Net	P. M. Net
Allen	99	101	28	71	73
Armagnac	...	113	20	..	93
Broatch	...	97	20	..	77
Conroy	104	119	40	64	79
Dawson	108	...	32	76	..
Foster	116	116	36	80	80
Garrity	93	105	25	68	80
Hamill	108	...	33	75	..
Hassinger	...	100	22	..	78
Johnson	88	83	8	80	75
Keating	85	81	10	75	71
Kelly	112	124	25	87	99
Larkin	106	118	40	66	78
Leach	100	103	31	69	72
Letcher	118	123	30	88	93
Murphy	93	93	20	73	73
O'Neil	89	...	15	..	74
Platt	85	94	15	70	79
Power	86	88	15	71	73
Rothwell	...	95	20	..	75
Wall	103	104	18	85	86
Warth	101	106	30	71	76
Weaver	...	85	23	..	62
Wilkins	92	110	20	72	90
Williams	101	110	38	63	72
Woods	104	108	35	69	73

MOHAWK SEPTIC TANKS
MOHAWK
SEPTIC
TANK
Features Worth While
Made of copper bearing steel and dipped in hot asphalt insuring a heavy coating both inside and out.
Built-in pipe connections eliminate breaking and bending of the pipe connections when handling and tank settlement.
Handle on the cover makes it easy to install.
MOHAWK SEPTIC TANK CO, SCHENECTADY, N.Y.



Efficient Beauty

To create plumbing fixtures that combine every sought for beauty requirement with the highest possible working efficiency has ever been the purpose of the Enterprise Brass Works. See our line at your jobber's for proof of this.

Enterprise Brass Works
Muskegon, Michigan

Have you any used tools?

No doubt you have. Chances are, they are lying somewhere around your shop. Possibly new tools have replaced the old. These old tools will bring you dollars if advertised in the "For Sale" columns of DOMESTIC ENGINEERING. Some plumber in another locality may be waiting to obtain these tools, in good condition, at reduced prices. The very low rate of 8c per word makes the Classified Page a good buy.

Personal Mention

P. A. Myers, president of the F. E. Myers & Bro. Co., Ashland, Ohio, recently presented a ten-acre outdoor recreation center to the Y. M. C. A. of that city. The playground is to be known as Myers Field.

Frank N. Speller, director of the metallurgy and research department of the National Tube Co., Pittsburgh, was recently elected chairman of the metallurgical advisory board for the Carnegie Institute of Technology and the United States Bureau of Mines.

H. J. Kleinman, Morris building, Philadelphia, Pa., district sales manager of the Central Tube Co., has returned to his office fully recovered from an operation which confined him to a hospital and his home for approximately six weeks.

George Malmfelt, formerly manager of the Hudson Steel & Iron Co., New York City, is now covering Manhattan and the Bronx for Shoe-Letcher Co., Jersey City, N. J., manufacturer of nipples, laundry trays, and drain board covers.

Alex J. Brown, for many years secretary of the Manhattan branch, Association of Master Plumbers of the City of New York, and still associated with that body, who has been ill since early in October, is steadily improving in health, and it is hoped will soon be able to leave the hospital.

Edward M. Robinson, formerly with William S. Roe of Newark, N. J., has joined the sales force of the Holyoke Heater Co., Holyoke, Mass., and will cover Northern New Jersey territory for this concern. Mr. Robinson is a charter member of Chapter No. 1, National Association of Plumbing and Heating Salesmen, and is now serving as its president. He is also active in the Plumbing and Heating Trades Golf Association of New Jersey, being captain of that organization.

JOHN A. PHALEN CALLED BY DEATH

John A. Phalen, a pioneer in the plumbing industry in the East, died at Waterbury, Conn., on Wednesday, October 24, after a sudden attack of illness. Mr. Phalen, who was in his fifty-second year, had been with the Randolph-Clowes Co. of Waterbury for 38 years, and was plant superintendent of that company at the time of his death. He was a member of the Waterbury Board of Health. Besides his widow and a daughter, the deceased is survived by a son, John Phalen, who is sales manager of the New York Brass Co., New York City.

OTTO J. DESCHAUER CALLED BY DEATH

Otto J. Deschauer, president of the S. Deschauer Co., plumbing and heating wholesalers of Cicero, Ill., died suddenly at his home in Chicago on Friday morning, November 2, from an attack of acute indigestion. Apparently in good health, he was seized with the attack, and died before it was considered of a serious nature.

Mr. Deschauer, who was in his fifty-third year, had long been active in the management of the company, having started out in the business under his father who organized it in 1857. The business is to be continued by the present administration, of which Charles F. Stoddard is general manager.

Mr. Deschauer is survived by his widow, a daughter, and three sisters. The funeral was held Monday, November 5 at St. Leonard's Church, and interment was held at St. Boniface cemetery. Many of his friends in the trade attended the services.

PITTSBURGH CHAPTER HEARS NATIONAL PRESIDENT

Professor A. C. Willard of the University of Illinois, president of the American Society of Heating and Ventilating Engineers, was the chief speaker at the meeting of the Pittsburgh Chapter of the society, held Monday evening, November 5, at the Blue Room of the William Penn Hotel in that city.

Professor Willard's subject was the "Ventilation Problems of the Holland Tunnel," one of the major ventilating jobs of the past few years. His talk was interesting to the good crowd in attendance, especially since he was one of the engineers who undertook a great deal of the research in the ventilating of the tunnel.

INSTALLS NEW OFFICES

Frank A. Ebert of Frank A. Ebert Co., Orange, N. J., wholesaler, celebrated his first anniversary as the successor to the North Jersey Supply Co., on November 1. As part of the celebration, the concern has installed new offices and counters at the headquarters, 303-5 Railroad Place. Mr. Ebert, formerly treasurer of Rogers-Ebert Co., has been in the plumbing supply business in the Oranges for 18 years.

THIS WAS NEWS 1908 20 YEARS AGO

November 7, 1908

The proceedings of the twenty-sixth annual convention of the National Association of Master Plumbers of the United States have been issued by President W. H. Halsey. The report comprises 262 pages.

———1908———

David Craig, former president of the National Association of Master Plumbers, who recently conducted an investigation on the question of sewer gas, and read a lengthy paper on this topic before the national convention, spoke on the subject before the members of the Massachusetts Association of Boards of Health at their quarterly meeting in Boston, on October 29.

———1908———

Plumbing Inspector Henry B. Davis of Washington, D. C., reports that plans are being prepared for a new underground public comfort station to be erected in that city in the near future.

———1908———

The Illinois Chapter of the American Society of Heating and Ventilating Engineers will hold a meeting on Monday evening, November 9, in the private dining room of the Union restaurant, 111 Randolph street, Chicago.

———1908———

The board of education of Washington, D. C., at its recent meeting placed itself on record as favoring the "bubble" type of drinking fountain for schools.

———1908———

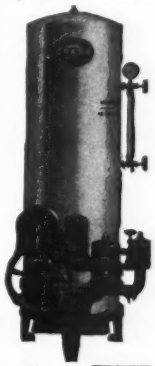
Frank E. Zimmerman of Camden, N. J., has the plumbing contracts on a number of residences on Kaighn avenue in that city.

———1908———

J. R. Sheehan of Schenectady, N. J., has just finished the installation of plumbing and heating in the Vendome Hotel in that city.

Sell a Crane Water System to one farmer *Others will follow*

IN your neighborhood there is always one farmer ready to use the equipment and the methods which make for prosperity. Lose no time in getting him interested in a Crane Water System. Show him how easily it can be installed; what comforts, health, and profits it will bring. Thus you can make his farm a demonstration farm for the entire neighborhood; and a ripe, lucrative market will be opened to you. Write for full information and sales data on dependable Crane systems.



Crane Shallow Well System. 200 gallons an hour capacity. 42 gallon tank. 1/6 h. p. Complete, f.o.b. factory $120

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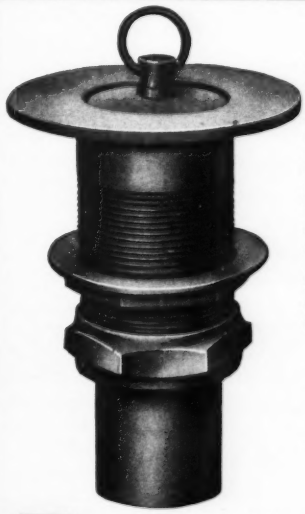
Branches in all principal cities

Tray and Sink Plugs



The Trenton Tray Plug can be furnished you by your jobber. They are easy to install and are built ruggedly for maximum service. Carried in stock by most wholesalers. If your wholesaler does not happen to have them in stock, he can get them for you promptly.

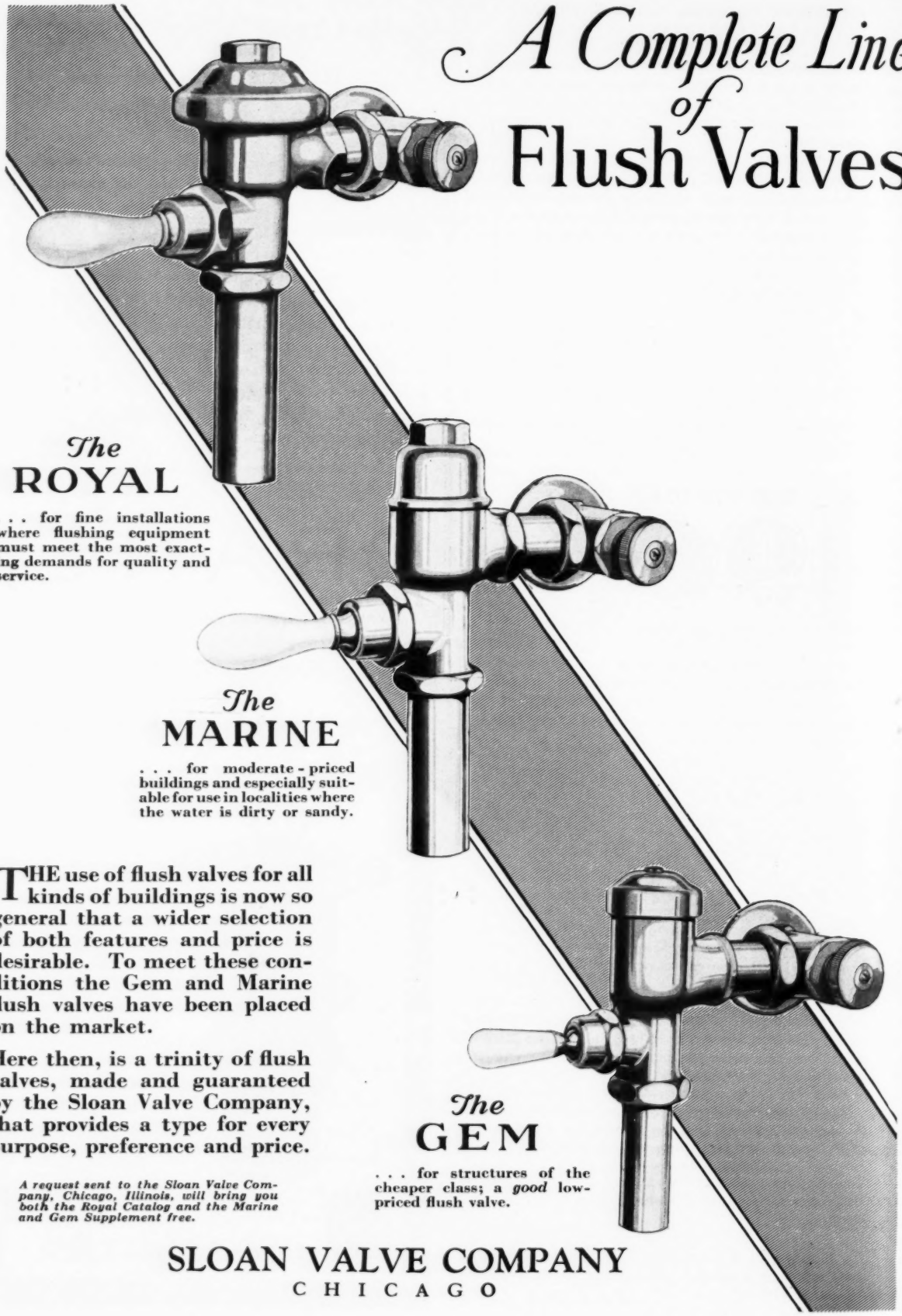
The Trenton Brass and Machine Co.

Trenton, N. J.

Represented by Rollin C. Wilson

7 E. 42nd St., New York, N.Y.
261 Franklin St., Boston, Mass.
121 N. Broad St., Philadelphia, Pa.

A Complete Line of Flush Valves



The **ROYAL**

. . . for fine installations where flushing equipment must meet the most exacting demands for quality and service.

The **MARINE**

. . . for moderate-priced buildings and especially suitable for use in localities where the water is dirty or sandy.

The **GEM**

. . . for structures of the cheaper class; a *good* low-priced flush valve.

THE use of flush valves for all kinds of buildings is now so general that a wider selection of both features and price is desirable. To meet these conditions the Gem and Marine flush valves have been placed on the market.

Here then, is a trinity of flush valves, made and guaranteed by the Sloan Valve Company, that provides a type for every purpose, preference and price.

A request sent to the Sloan Valve Company, Chicago, Illinois, will bring you both the Royal Catalog and the Marine and Gem Supplement free.

SLOAN VALVE COMPANY
CHICAGO

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Soil Pipe Prices Are Advanced

THE seasonally active dispositions of almost all plumbing and heating materials which manufacturers and wholesalers have experienced during the past several weeks showed no sign of recession during the weekly period covered by this report. In fact, demand from contractors for boilers, radiators, cast iron fittings and other items needed for the installation of heating systems continues to climb. Then, too, in the plumbing line, enameled ware, pottery and brass goods are still moving at a lively pace. Demand for range boilers cannot be termed better than fair, and contractors' current needs in the way of soil pipe can be classified in the same manner.

An outstanding development of the week was the announcement by a number of soil pipe manufacturers of an advance in their prices to wholesalers. For some time makers' published quotations have differed quite widely, making it difficult to state the exact amount of the advance, except to say that most manufacturers' sheets now carry the same prices. When this report was written the copper market was still strong, and, as mentioned last week, cast and tubular brass goods manufacturers are said to be adhering strictly to their sheet prices. On October 27, brass pipe was again advanced ¼ cent per pound by several makers, this being the fifth similar advance since the middle of September. Little difficulty is encountered in securing material from manufacturing sources, and most wholesalers have good working stocks.

NEW YORK

October Activity Was Brisk—

Interest in the plumbing and heating industries seems somewhat divided when looking back over the transactions for the past 30 days in the Greater New York territory. The strength in which brass products have been enshrouded, the better totals business shows, and the price advance leading makers of soil pipe announced—each demands its full share of appreciation. Of these developments—all major—the most conspicuous probably is the action taken on soil pipe, which for the better part of the year has been the most unsettled of the more important commodities. Neither was the increasing demand for merchandise unlooked for by the industry in this section, mainly because of the expansion in building construction that has been evident during the last few months.

Construction contracts awarded in the metropolitan district of New York during the past month were the highest October contract total ever recorded in this territory, according to F. W. Dodge Corporation. It was also the largest monthly total on record since December, 1926. Last month's total, $164,909,100 in amount, shows a gain of 24 per cent over the preceding month and a gain of 13 per cent over the October, 1927, total. Last month's construction record brought the total amount of new building and engineering work contracted for in this district since the first of the year up to $1,317,361,700, as compared with a total of $1,161,701,300 for new construction contracts during the corresponding period of 1927, the increase being 13 per cent.

Too much stress cannot be laid on the seriousness of the credit situation, as it is apparent that a portion of the building activity is not as soundly financed as it might be, causing slowness in the forthcoming payments. This condition is reflected from contractor to jobber and from jobber to manufacturer. Production generally seems well geared to demand so that no tremendous reserves in the hands of manufacturers and jobbers running on minimum stock distribution is uncurtailed.

Soil Pipe

One large producer of soil pipe announced on November 3 an advance in his prices to jobbers, with limitations as to the quantity of bookings that will be entered. The program, it is said, eliminates all blanket coverages and confines buyers of jobbing houses to specific shipping dates during this month and next only. Other foundries, it is reported, are adopting this arrangement. Because of the varied prices that have been current, it is difficult to state the exact extent of the advance. Consumption during the past month was rather good, with buyers adhering closely to a buying as needs arise policy. While few, if any, foundries have exceptional surplus stocks, no shipping difficulties have been reported.

Pipe—Brass, Steel and Wrought Iron

Several manufacturers of brass pipe further increased prices on October 27, when another ¼ cent per pound was added to their prices to distributors. This action gave this commodity its fifth of a series of similar advances since the middle of September. No change in steel and wrought iron pipe prices was made by mills. Pipe, according to the survey made for this report, has lost no ground where demand is concerned. The requirements of piping contractors are still good, so that frequent shipment requests from jobbers are received by makers. These wants are readily satisfied by manufacturers, practically all of whom have reserve holdings that are commensurate with the trend of business.

Fittings

From all that could be gathered, the brass fittings market appears to be very strong at this writing. Malleable and cast iron screwed types are also rather stable. Demand seems to have struck a steady stride, with October giving a better account of itself than the preceding 30 days. From the manufacturers' standpoint, wholesalers are beginning to call for out of warehouse shipments. This apparently would indicate that many jobbers have begun to get their stocks within inventory range.

Enameled Ware

Impressions collected in the New York territory of the enameled ware situation for the week this report covers indicate that demand has lost no ground. Leading manufacturers participating in the business created by the unusual building program that is going forward in this territory seem pleased with the trend. Master plumbers are by installation consuming substantial quantities of fixtures. The bigger portion of the business placed by jobbers is for immediate delivery. Factories are shipping satisfactorily. Manufacturers have made no change in prices.

Pottery

Activity in the pottery market is holding well when the fact that contracts on new projects are being made at a slower rate than that which prevailed a month ago is taken into account. Construction awards in October, however, showed an increase over those of September, giving the future a good outlook. Jobbers as a rule are not well supplied with stocks beyond their current needs. Potters are responding to shipping requests promptly. Prices have not been disturbed by manufacturers.

Plumbers' Brass Goods

Most producers agree that business during the past month was greater in volume than in both last September and a year ago during October. With the price situation rigid, November is expected to be productive of good business even though most of the fresh orders embrace small quantities and the probable requirements of many wholesale houses for the balance of the year have already been booked by manufacturers. Master plumbers are buying both tubular and cast brass items steadily. Factories are shipping satisfactorily, even though some are closely pressed in maintaining this service.

Range Boilers

Better demand for range boilers prevailed during October than was evident at the close of the preceding month. Plumbing contractors' needs are averaging fairly well for this season of the year. Jobbers are reflecting to manufacturers this rate of consumption because their stocks are not any too broad. Sources of production are making deliveries promptly. Jobbers have not been notified by manufacturers of any change in prices.

Boilers and Radiators

Most heating interests express themselves as being well pleased with boiler and radiator sales. Wholesale houses are buying about as heating contractors place business. The last named factors are at this time well engaged as far as work is concerned. Makers are having no difficulty with shipments as their reserve stocks are substantial. The price situation from the standpoint of manufacturers is unchanged.

The Ben F. Hurst Co., Richmond, Ky., has recently been awarded several nice contracts in the neighborhood. These include the heating of five residences in Seco, Ky., two residences and a store in Millstone, Ky., heating and plumbing in a residence at St. Charles, Va., heating in two churches at Ravenna, Ky., and the plumbing and heating of ten residences in and near Richmond.

CENTRAL WEST

Consumption Takes Healthy Volume—

The pace at which plumbing and heating materials have been moving into consumption in the Central West territory in the past few weeks was undiminished during the seven-day period covered by this report, according to most reports from manufacturers and wholesalers operating in the district. In general, the movement of boilers and radiators continues to gain ground, and heating contractors are also ordering freely where steel pipe, radiator valves and cast iron fittings are concerned. As has been true for some time, enameled ware, pottery and plumbers' brass goods are experiencing good turnovers among wholesalers, who in turn are replacing this material about in the same volume as their sales. Some buyers for wholesale houses are commencing to look forward to approaching inventory time, and, as a result, are closely watching the condition of their stocks.

At this writing copper continues to show the strength that has featured this market of late. Cast and tubular brass goods manufacturers, it is reported, are adhering strictly to their published quotations. During the week a number of soil pipe manufacturers advanced their prices to wholesalers. Due to the fact that, before this change, makers' sheets were at different levels, the size of the advances varied, but now practically all makers' sheets are at the same level. On October 27 several brass pipe makers advanced their prices to jobbers ¼ cent per pound, this being the fifth advance of a like amount since the middle of September.

Soil Pipe

Toward the latter part of the week a number of manufacturers issued new price sheets advancing their quotations to wholesalers. The amount of the advance varies among the different producers, as their sheets have not all been the same during the past few months. With the new schedule, it is reported, manufacturers generally are quoting the same prices. Producers state that new business picked up somewhat during the week, but that the only orders being accepted are for specified delivery during November and December.

Pipe—Steel and Wrought Iron

Sales of steel pipe, according to manufacturers' representatives in this district, are holding at a satisfactory seasonal level, heating contractors accounting for a good part of the pipe now being consumed in the building field. Little change was apparent in the wrought iron pipe market during the week just passed, and mill salesmen seem to feel that current tonnages are in keeping with this period of the year. There is nothing new in the way of mill price sheets. Shipments from sources of manufacture are not being delayed.

Fittings

Manufacturers and wholesalers in this area report a good turnover of cast iron fittings, attributing this in part to the requirements of heating contractors. Malleable fittings and drainage fittings are also going quite well for this time of the year. Wholesalers, in most instances, are in possession of good working stocks, but from time to time are forced to order replacements. Manufacturers have announced no change in their prices, and are able to grant early deliveries.

Enameled Ware

Contractors are continuing to call for enameled ware in a way that makes for a steady turnover of wholesalers'

stocks, and they in turn, are calling on manufacturers for replacements to keep their stocks at safe working levels. Producers have ample stocks of most items at their factories and can supply their distributors in quick time. Manufacturers have announced no change in their prices to jobbers.

Pottery

Manufacturers' salesmen covering the Central West territory, while in many instances not entirely satisfied with current business, say that demand from wholesalers was practically the same as last week. Contractors are using fair quantities, as a large number of buildings are still at the finishing stage. Some figuring is also reported under way on contemplated large-sized projects, which lends optimism to the future. Staple items may be had about as wanted from potteries. Jobbers have good working stocks. Potters' prices to their distributors have not changed.

Plumbers' Brass Goods

Information gathered during the week indicates that manufacturers' prices to wholesalers continue to hold at the firm state that has been apparent of late, and the strong copper market is still attracting a good share of attention among buyers for wholesale houses when placing their orders for cast and tubular brass goods. Jobbers have fairly good stocks of most items, and, with inventory approaching, are not generally ordering for their needs beyond the first of the year. No word has been received of price changes by manufacturers.

Range Boilers

Manufacturers in general seem to agree that business so far this year is not up to the mark arrived at by this time a year ago, but reports indicate that some improvement has been noted in demand for boilers in the past few weeks. Factory stocks are large enough to insure immediate shipments. Makers have not changed prices.

Boilers and Radiators

Heating contractors in the Central West territory are operating with good-sized crews and in nearly all instances are steadily busy. As a result, both wholesalers and manufacturers are in receipt of a very satisfactory business in boilers and radiators. Factory stocks are in a condition that insures against delivery delays. Makers have not changed their prices.

MIDDLE ATLANTIC

Business Pace Is Steady—

The Middle Atlantic territory enters the second month of the last quarter with little fluctuation from the good rate at which plumbing and heating materials are moving into consumption. This pace, which in many respects gave October a margin over the preceding month, also, at least where some producing and selling factors were concerned, gave the tenth month the position of being the best of the year. The sustained demand, too, has given rise in many quarters to the feeling that November will give an exceptionally good account of itself. All reports, though, do not point in the same direction as there are those in this section of the country who feel that business will soon begin to show indications of tapering. This is not, however, substantiated by surveys of building operations. The F. W. Dodge Corporation reports contract awards in this section amounting to $22,201,900 for the week October 20 to 26. The reports for the previous weeks of that month averaged $18,138,133, giving the last full week of October a decidedly higher pitch.

The outstanding developments of the week center around brass pipe and soil pipe, the prices of both being advanced by several manufacturers. The price increase of the last named commodity strengthened it perceptibly, and in the instance of brass pipe the price was advanced by some makers another ¼ cent per pound, making the fifth similar rise since the middle of September. This is a reflection of the steady advance copper has been making. Jobbers in no instance have unusually heavy stocks but, for the most part, are coasting toward the approaching inventory season with trimmed holdings.

Soil Pipe

On November 3 one large manufacturer issued a new sheet advancing prices to wholesalers. It is difficult to indicate the change accurately because of the differences in the prices foundries were quoting previously. It is reported that several other manufacturers have followed the advance. Makers have indicated that the only bookings from jobbers will embrace specified delivery dates during November and December. The requirements of master plumbers accounted for a tonnage that is considered fairly good for this season of the year. Few jobbers have stocks at this time greatly beyond their current needs. Producers are filling orders promptly.

Pipe—Brass, Steel and Wrought Iron

About the only eventful occurrence in the long pipe market during the week was the advance of ¼ cent per pound on brass pipe made by a number of manufacturers. This is the fifth advance of a like amount on this item since the middle of September. Manufacturers of steel and wrought iron made no change in their respective prices. Demand has not fallen away from the moderately good rate that has prevailed; neither has it loomed any larger. Jobbers are well enough provided with pipe to readily take care of the requirements of their trade. Manufacturers are shipping promptly.

Fittings

No materially increased interest in the fittings' market was manifested in this territory during the past seven days. Jobbers are as a usual thing maintaining their stocks at a well assorted but none too broad a point. Piping contractors are using moderately substantial quantities of cast iron screwed and malleable types. Brass fittings are in good demand. The price situation remains unchanged as far as new sheets from manufacturers are involved. Shipments from makers are completed promptly in most instances.

Enameled Ware

Producing interests are still shipping enough enameled ware into this territory to give business an aspect of good activity. In instances of some makers the volume of completed shipments during October exceeded those of the same month of 1927 and the previous 30 days. The margin, however, was rather narrow and not all of the manufacturers serving this area enjoyed the experience, some finding that sales held about even. Most buying during the closing days of October called for immediate delivery to enable jobbers to keep their trade, whose demands aggregate a good volume, satisfied. Manufacturers are giving good delivery service. Buyers for wholesale houses have had no notice of a change in prices.

Pottery

The rate at which pottery is being moved is considered good. There were a number of jobs on which fixture contracts were placed for later delivery and there still are a number of buildings for which the fixtures have not been ordered. October was generous in the matter of affording business involving pieces of the better grade. Wash-down bowls and tanks are in good demand, jobbers though for the most part are confining their purchases to near-by re-

quirements. Manufacturers are supplying satisfactorily. Prices from potters remain unchanged.

Plumbers' Brass Goods

Manufacturers seem to be shipping freely against their back-logs; as a consequence, a rather limited amount of new business is being placed by jobbers in this section. The rate at which plumbing contractors are requiring both cast and tubular brass goods is closely proportionate to that at which jobbers are receiving shipments. As a rule, though, the shelves of most jobbing houses are better stocked now than they were a short time ago. Some makers are hard put in keeping abreast with deliveries, but curtailments are not in any way serious. Steadiness marks practically all price quotations made by manufacturers.

Range Boilers

The past couple of weeks have witnessed an improvement in the demand for range boilers. Makers, however, are not unanimous in this feeling, as some report demand from their standpoint uncertain. One of the leading factors in this area, though, contends that the requirements during October this year were greater than over the same period of last year and considerably better than in last September. Factories are making prompt deliveries. Manufacturers have not changed their prices.

Boilers and Radiators

Despite the sustained activity that has surrounded boilers and radiators for the past 30 days, manufacturers are having little or no difficulty with shipments. The requirements of heating contractors are creating a demand that is somewhat in excess of a year ago at this time and their needs during October from the standpoint of some manufacturers made that month outstanding in the matter of tonnage. This material is moving from producers' plants about as it is being installed. Nevertheless, some business placed involves equipment intended for buildings not yet ready. Manufacturers have indicated no change in prices.

The Stock Market

Par Value	1928 High	1928 Low	Range for Week Ending Nov. 3, 1928	*	High	Low	Close
NP	86⅜	59	Air Reduction Sales Co.	A	82⅞	79	81¼
25	176	130½	American Radiator Co., com.	A	176	157	173
100	152	140	American Radiator Co., pfd.	A	142	142	142
25	114	82½	American Rolling Mills Co.	B	100½	97¼	98½
50	90¼	53¾	Anaconda Copper Mining Co.	A	90¼	87½	89
NP	72½	51¾	Bethlehem Steel Co., com.	A	67¾	65½	66
100	125	116¼	Bethlehem Steel Co., pfd.	A	120	119¼	119½
NP	62⅜	27½	Brunswick-Balke-Collender Co.	A	54½	51	52½
NP	168¼	90½	A. M. Byers Co., com.	A & E	161½	150	153
100	113½	108	A. M. Byers Co., pfd.	A & E	113¼	113	113
100	140	128	Century Electric Co., com.	F	130	130	130
100	106	101	Century Electric Co., pfd.	F	103	103	103
50	6	3	Chicago Nipple Mfg. Co., "A"	B	5	4⅜	5
50	3	1¼	Chicago Nipple Mfg. Co., "B"	B	2⅜	1⅜	1½
25	50	45	Crane Co., com.	C	48¼	48	48¼
100	122	118¾	Crane Co., pfd.	C	120	120	120
100	94	67	Detroit Brass & Malleable Works	D	70	70	70
100	110	91	The John Douglas Co., pfd.	H	98	98	98
20	23	17	Eagle-Picher Lead Co.	H	18	17⅛	17⅛
NP	54	32½	Fairbanks, Morse & Co., com.	A	45⅞	42⅝	42⅝
100	114¾	104	Fairbanks, Morse & Co., pfd.	A	112	111¾	111¾
NP	46	27½	Fulton Sylphon Co.	B	46	45¾	46
NP	12½	8½	Greenfield Tap & Die Corp.	B	12½	11¾	12½
NP	177½	96¼	Johns-Manville Corp., com.	A	173¾	165½	167
100	123	117	Johns-Manville Corp., pfd.	A	120	119⅝	119⅞
100	160	150	Jones & Laughlin, com.	A & E	154	154	154
100	124¼	119½	Jones & Laughlin, pfd.	A & E	121½	121	121⅜
NP	44	30	Minneapolis-Honeywell Reg. Co., com.	B & C	42½	41	41
100	106	98	Minneapolis-Honeywell Reg. Co., pfd.	B & C	106	105	106
NP	56½	31½	Modine Mfg. Co.	B & C	56	51	55½
NP	42	32	F. E. Myers & Bro. Co., com.	G	37¼	37¼	37¼
100	105¾	104½	F. E. Myers & Bro. Co., pfd.	G	104½	104½	104½
100	136	115	National Lead Co., com.	A	120	117	120
100	147¼	139	National Lead Co., pfd. "A"	A	142	142	142
100	121½	112½	National Lead Co., pfd. "B"	A	118½	118	118
NP	40¾	14	National Radiator Corp., com.	A	18⅛	17	17½
NP	98½	40	National Radiator Corp., pfd.	A	47	40	40
5	34½	25½	Herman Nelson Corp.	B	26	23⅞	26
NP	46	19½	Neptune Meter Co., "A"	B	46	46	46
100	109	104	Ohio Brass Co., pfd.	G	105½	105½	105½
NP	100	85½	Ohio Brass Co., "B"	B & G	86	86	86
100	101½	100	Penberthy Injector Co., pfd.	D	101½	101½	101½
NP	27	15	Richmond Radiator Co., com.	B	16	16	16
NP	40¼	32½	Richmond Radiator Co., pfd.	B	34	34	34
NP	53	26	Spang, Chalfant & Co., com.	A	49¾	45½	47
100	100	97	Spang, Chalfant & Co., pfd.	A	98	97¼	97
NP	42¼	34	Standard San. Mfg. Co., com.	A & E	37⅛	36½	37⅛
100	128	118	Standard San. Mfg. Co., pfd.	A & E	120	118	120
100	300	190⅛	U. S. Cast Iron P. & F. Co., com.	A	263	260	260
20	53	47	U. S. Cast Iron P. & F. Co., new	A	53	47	47
100	137	115	U. S. Cast Iron P. & F. Co., pfd.	A	122	122	122
NP	48	38½	U. S. Radiator Corp., com.	B & D	43	43	43
100	107½	101	U. S. Radiator Corp., pfd.	D	102	101½	101½
100	63¼	27	U. S. Rubber Co., com.	A	42½	36¾	40¾
100	119¾	55	U. S Rubber Co , pfd.	A	71¾	66⅜	71¾
100	166½	132¾	U. S. Steel Corp., com.	A	163⅝	159	160⅞
100	147¼	138⅛	U. S. Steel Corp., pfd.	A	142⅝	141	141⅜
NP	26⅞	14½	Walworth Co.	A	24	21⅞	22¼
NP	52	32	Wayne Co., com.	B & C	32½	32⅛	32⅛
NP	52	45	Wayne Co., pfd.	B & C	45	45	45
100	72	72	Wheeling Steel Corp., com.	B	72	72	72
100	126½	125	Wheeling Steel Corp., pfd. "A"	B	126½	126½	126½
100	135½	135½	Wheeling Steel Corp., pfd. "B"	P	135½	135½	135½
NP	22	6½	Williams Oil-O-Matic Htg. Corp.	C	19	17¼	17¼
NP	106⅞	83½	Youngstown Sheet & Tube Co.	A	92½	90¾	92

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

The Metal Market

	Nov. 6	Average Sept., 1928	Average July, 1928	Average 1927
PIG IRON—				
No. 2 foundry, Chicago, Furnace	$20.00	$18.30	$17.60	$19.66
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.90c	1.90c	1.85c	1.83c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	2.00c	2.00c	2.00c	2.20c
Black sheets, No. 24, Pittsburgh, per lb.	2.75c	2.65c	2.65c	2.91c
TIN—				
Straits tin	49½c			
LEAD—				
Chicago	6.20c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	18 c	Copper, light	11½c
Block tin	45½c	Copper, uncrucibled wire	12½c
Brass, light	7¾c	Faucets and valves	10¼c
Brass, heavy mixed	8½c	Lead, heavy	5.60c
Brass, red	10¾c	Solder joints	9½c
Copper, crucible	12¾c		

NOTE: Prices are those quoted on Tuesday of this week.

NEW ENGLAND

Finishing Goods Are In Good Demand—

Trading activities in the plumbing and heating materials' market throughout the New England states during the past seven-day period indicated neither radical advance nor appreciable decline from the heretofore existing good trend. While sales for the month of October are not at this writing completely tabulated, it is almost generally admitted by wholesalers and manufacturers that volumes were of quite satisfactory nature and commensurate with those recorded for the corresponding month of

last year. It is reported, on the other hand, that there is a noticeable falling-off in the number of quotations emanating from wholesalers' and makers' offices, which condition, nevertheless, is warranted as winter approaches. The first few days of November disclosed that finishing products are still moving freely both to and from jobbing points. According to many makers, however, first of the month consignments are not so voluminous as formerly, indicating that jobbers, with inventory period drawing nearer, are exercising greater caution in their purchases.

Contractors, while using sufficient quantities of roughing-in materials as to occasion a seasonally good flow from jobbers' stocks, are especially active in their installations of enameled ware, pottery and brass goods. House heating boilers and radiators are also moving into consumption at a steady pace and makers are generally enthusiastic over prospects for the remainder of the year. Jobbers' stocks are being kept well regulated through manufacturers' abilities to effect early shipments. On October 27, brass pipe prices were raised by several makers ¼ of a cent per pound. Manufacturers of radiator valves also announced a 5 per cent advance in their prices to distributors.

Soil Pipe

Distributors generally are not in possession of quantities of soil pipe which are in excess of their near-at-hand requirements. While plumbing contractors are not actively engaged in soil pipe installations, there still obtains a demand which is good for this time of the year. During the week several manufacturers issued new sheets advancing their prices to wholesalers.

Pipe—Brass, Steel and Wrought Iron

The continuing upward tendency of raw copper quotations has brought about another price advance of ¼ cent per pound by several brass pipe manufacturers. In spot shipments to jobbers' stocks and in short period cover orders, manufacturers have enjoyed during the past several weeks substantial business. · Heating contractors' activities are largely responsible for the increased shipments of steel pipe from wholesalers' stocks. Wrought iron mill representatives are in receipt of satisfactory tonnages for this season of the year. Distributors' pipe inventories are of fair size. Mill prices of steel and wrought iron pipe are unchanged.

Fittings

No deviation from the comparatively steady rate of demand was noted during the week by either makers or wholesalers. Roughing installations in the plumbing field call for fairly good quantities of brass fittings, but lesser amounts of cast iron and malleable fittings from one week to the next. Interest in the last two classes is sustained, however, by continuing active absorptions by heating contractors. Good deliveries are obtainable from sources. No price changes have been reported by manufacturers.

Enameled Ware

With the continuance of active turnovers of enameled ware by jobbers, necessitating frequent replenishing of their stocks, the average manufacturer is accorded good seasonal totals. The week just passed was especially prominent, first of the month releases of carload consignments to wholesalers indicating that consumption of this commodity has not appreciably relaxed. Both producers' and wholesalers' prices remain unchanged.

Pottery

Representatives of potteries in this section find that placements by jobbers for staples are of well sustained volume. Installations of the more special types of ware are quite numerous, as attested by potters' reports of activities in this class of business during the past month. For the most part, wholesalers are amply supplied to meet

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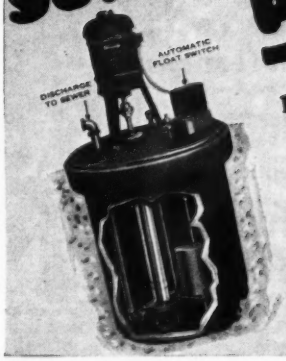

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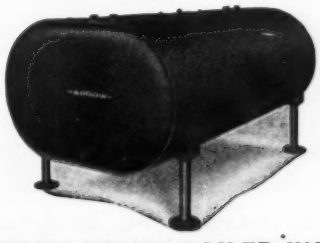

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their trade's immediate wants. No delivery extensions from sources are reported.

Plumbers' Brass Goods

Plumbing contractors, in their finishing work, are using both cast and tubular brass products in a measure which gives jobbers seasonally active sales and which is quickly reflected in makers' shipments. New placements by wholesalers, however, are not frequent, except for items not regularly carried in stock, for withdrawals on contracts, previous to makers' issuances of advanced prices, account for the bulk of brass goods moving from sources.

Range Boilers

Galvanized range boilers seem to be in just as good demand as they were at this time last year, but, according to a number of makers, hot water storage systems sales have greatly increased over last year. Jobbers are aware of a somewhat slackened interest in consumption requirements, yet taken over a monthly period their receipts are fair.

Boilers and Radiators

Heating equipment still holds a prominent position in this market. Makers are in receipt of good volumes, and the past week, in first of the month releases, proved especially active. Local warehouses of manufacturers are sufficiently supplied, and sources have ample reserve stocks to care for quick delivery requests.

PACIFIC COAST

New Construction Is Fair—

Coast business as a whole continues spotty and is better in some sections than in others. A fair amount of new building work is in progress. Distributors generally have well balanced although not heavy stocks and are replacing merchandise in about the same volume as sales. Distributors' prices vary in the jobbing centers.

Soil Pipe

A nominal demand for soil pipe continues with most purchasing being done in small lots for immediate requirements. Distributors are carrying normal stocks for this period of the year and prompt delivery can be made on all of the trade's needs.

Pipe—Steel and Wrought Iron

Little if any change was noted during the past week in the demand for these commodities, both of which are moving in fairly satisfactory volume. Distributors' prices to the trade vary in the different jobbing centers.

Fittings

A steady although not heavy demand for fittings continues, and, while most purchasing is in small lots, the total amount moving from jobbers' stocks is about normal at this period of the year.

Enameled Ware

Enameled ware is moving mostly in small lots for immediate installation and, while a substantial amount of ware is being sold at present, the demand is not as heavy as for the same period of last year. Distributors' stocks as a rule are in good condition.

Pottery

Little change is noted from week to week in the demand for pottery. The trade is only purchasing in small lots as their needs indicate, but the aggregate amount is satisfactory. Distributors have sufficient stocks to take care of the trade's present needs. Prices remain unchanged.

Plumbers' Brass Goods

Plumbers' brass goods, especially cast brass, is moving at a good pace. Distributors are carrying well balanced stocks and are also able to secure prompt shipment from manufacturers.

New Trade Literature

Circular of Penberthy Injector Co.

Penberthy Injector Co., of Detroit, Mich., is sending out a circular calling attention to the probability of basements being flooded during the rainy season. The company's automatic cellar drainer and electric sump pump are illustrated.

Bryan Steam Corp.'s Circular

Bryan Steam Corp., of Peru, Ind., is sending out a circular describing its copper tube boilers. The construction and operation is explained, and an illustration is given.

Bulletins of American Oil Burner Association

The American Oil Burner Association of New York City has just published a bulletin called "Oil—The Modern Heat for Office Buildings." The bulletin gives figures regarding the cost of heating the Singer building in New York, with oil and with gas. An illustration shows a large office building, and its oil-fueled boilers. Another bulletin is devoted to a discussion of the use of oil fuel in schools.

Clock System for Oil Burner Regulation

Tork Clocks, Inc., of New York City, have issued a leaflet with cut-away view and wiring diagrams of their clock switches for turning oil burners on and off. A series of questions concerning the operation of the clock switches is included in the leaflet.

New Catalogs of Duro Co.

The Duro Co., of Dayton, Ohio, has just issued a set of two new catalogs. One of the catalogs is devoted to electric water systems, while the other covers the water softeners and filters of the company's manufacture. Since two catalogs have been used instead of one, it is possible to describe each article more in detail. A section is devoted to data on the subject of the selection of a water system, either a shallow well or deep well. Data are also given concerning the selecting of the proper size softener, with flow rates at various inlet pressures.

Catalog of Water Works Equipment Co.

Water Works Equipment Co., of New York City, has issued Catalog A, devoted to pipe line supplies. Catalog B, also just issued, lists tapping machines, tapping sleeves and valves, tapping crosses and valves, flanged end valves, sprinkling valves, reducing valves, altitude valves, hub end valves, nozzle valves, check valves, hose valves, repair sleeves, compression hydrants, and sewer pipe accessories. A third catalog lists leak locating instruments, recorders, manometers, gauges, meter accessories, hydrant pitots, service connections, etc.

Epigrams—For Your Use

Some men are like a wheelbarrow; they go around only when pushed.

* * *

Pity is too often given as a substitute for charity.

* * *

Few people care to be reminded of the little sins they like to commit.

* * *

The noblest study of mankind may be man; but the favorite study is woman.

* * *

The more people talk back the better the auctioneer likes it.

* * *

Blank leaves are not desired in the volume of business.

Your prospects will become customers—

You will find sales easier—if you offer

BADGER

Copper Hot Water Boilers

Their rust-free operation and fine appearance are assets that cannot be denied. They attract the prospect and the moderate selling price clinches the bargain—with a sizeable profit showing on your books. Modern manufacturing methods and large volume of business enable us to offer very liberal discounts.

Write us for descriptive bulletin, prices, etc.

E. B. BADGER & SONS CO.
75 Pitts Street :: Boston, Mass.
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Representatives in all Principal Cities

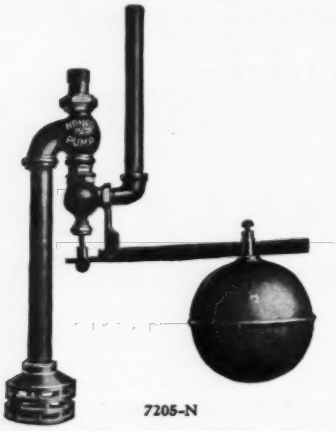
"Sheer Comfort" Control Sells at $27.00 Complete

"Sheer Comfort"

AN Electric Thermostat Heat Control that makes any furnace automatic. Everybody wants it—and you will want to sell it the minute you see it work. The "Sheer Comfort" Control means efficient house heating, savings in fuel, protection of health, and "Sheer Comfort." Positive, accurate, lifelasting. Priced so you can sell it. Write today on your letterhead for descriptive circular, dealer's prices, terms, etc., or enclose $17.55 for complete sample outfit.

Address Dept. DE.

H. M. Sheer Co. Quincy, Ill.
ESTABLISHED 1886



7205-N

A Good Cellar Drainer That Has Been Improved

A new intake strainer is now being furnished with all cellar drainers that will permit a larger quantity of water to enter the jet in addition to preventing floating or solid matter from clogging or entering the strainer, thereby giving greater efficiency.

N. O. NELSON MANUFACTURING CO.
MAIN OFFICE: ST. LOUIS, MISSOURI
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1872 — Pioneer Manufacturers of Plumbing Fixtures — 1928

Our Catalog

"EAFCO"

Cast Iron Refrigerator Drains

You can secure this drain in three styles. They are made deep, shallow and plain. They will protect your customers home by their efficient draining and will last year in and year out.

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New York Office: 50 Church Street
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Boston Office: P. O. Box 63 Cambridge, Mass.

Convention Dates

November 19-24, 1928.—COAL CONGRESS.—The Second International Conference on Bituminous Coal, at the Carnegie Institute of Technology, Pittsburgh, Pa.

December 3-8, 1928.—POWER EXPOSITION—The seventh annual National Exposition of Power and Mechanical Engineering, to be held at Grand Central Palace, New York City.

January 22, 23 and 24, 1929.—ILLINOIS—The thirty-seventh annual convention of the Illinois Master Plumbers Association, to be held at Peoria, with headquarters at the Pere Marquette Hotel.

January 28, 29, 30 and 31, 1929.—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, at Chicago, Ill.

January 29, 30 and 31, 1929.—WISCONSIN—The thirty-fifth annual convention of the Wisconsin Master Plumbers' Association, to be held in Milwaukee, with headquarters at the Hotel Pfister.

February 5, 6 and 7, 1929.—OHIO—The thirty-eighth annual convention of the Ohio State Association of Master Plumbers, to be held in Mansfield, with headquarters at the Mansfield-Leland Hotel.

February 12-16, 1929.—POWER SHOW—The fourth annual Midwest Power Engineering Conference and Exposition, to be held at the Coliseum, Chicago.

March 11, 12 and 13, 1929.—INDIANA—The thirty-third annual convention of the Indiana Society of Sanitary Engineers, to be held at South Bend.

March 11, 12 and 13, 1929.—VIRGINIA—The sixth annual convention and a two-day institute of the Virginia Associated Plumbing and Heating Contractors, to be held at Charlottesville.

March 25 and 26, 1929.—MISSOURI—The forty-fifth annual convention of the Missouri State Association of Master Plumbers, to be held in Springfield.

April 2, 3 and 4, 1929.—A. O. B. A.—The annual convention of the American Oil Burner Association, to be held at New York City.

April 25 and 26, 1929.—LA.-MISS.—The eighth annual convention of the Louisiana-Mississippi Association of Plumbing and Heating Dealers to be held at Gulfport, Miss., with headquarters at the Markham Hotel.

May 6 and 7, 1929.—FLORIDA—The seventh annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at Daytona Beach.

May 23, 24 and 25, 1929.—N. A. P. H. S.—The fourth annual convention of the National Association of Plumbing and Heating Salesmen, to be held at Philadelphia.

June 25, 26 and 27, 1929.—N. A. M. P.—The forty-seventh annual convention of the National Association of Master Plumbers, to be held at Buffalo, N. Y., with headquarters at the Hotel Statler.

COMING TRADE EVENTS

November 10, 1928.—The fourth annual dinner and dance of the Jobbers' Credit Association, Inc., New York City, to be held at the Hotel Commodore.

November 12, 1928.—The November meet of the Heating Trades Golf Association of Massachusetts, to be held at the Unicorn Country Club, Stoneham, Mass.

November 12-26, 1928.—The first annual short course for plumbing instructors, to be held at the Agricultural and Mechanical College of Texas, College Station, Tex.

November 13, 1928.—The mid-winter meeting of the board of directors of the National Association of Master Plumbers, to be held in St. Louis, Mo.

November 27, 1928.—A dance to be given by the Women's Auxiliary to the Milwaukee Master Plumbers Association for families of master plumbers, to be held at Colonial Hall.

Sylvester Walsh, who for the past four years has been manager of the Walsh Plumbing Co., Salt Lake City, Utah, and has served three terms as secretary of the Utah State Association of Sanitary and Heating Engineers, is now studying law at the University of Utah. Mrs. Isabella M. Walsh, president of the Ladies Auxiliary to the Salt Lake City Association, is now in active charge of the company.

THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

WELDING COMMITTEE HOLDS FIRST MEETING

The recently appointed sub-committee on welding of the Heating and Piping Contractors National Association held its first meeting at national headquarters, 50 Union Square, East, New York City, on October 29 and 30. Most of the time was spent in laying out a program for the year's work of creating standards for welding in the heating industry. The committee is planning its campaign with four definite ideas in mind. The first is the preparation of specifications and information for architects and engineers, the second the preparation of information for heating contractors, the third the formulation of plans for training welders, and the fourth the development of co-operation with manufacturers of material especially suited for welding in the heating industry.

The group, which is a sub-committee of the committee on standardization, is composed of John H. Zink, of the Heat and Power Corp., Baltimore, Md.; J. A. McLeod, of the Asco Supply Co., Brooklyn, N. Y., and H. E. Wetzell, of Smith & Oby Co., Cleveland, Ohio. J. C. Fitts, assistant national secretary, acted as secretary of the committee.

PHILADELPHIA MASTERS ACTIVE IN ASSOCIATION WORK

Considerable activity is being shown by the Master Plumbers' Association of Philadelphia. At the November meeting, held on the evening of the first, the educational committee was to present instructive data on business management, this being under the management of Harry L. Stilwell. Plans had been made to analyze jobbing slips, with the material and labor taken into consideration. In addition, Mr. Munchweiler, sales counselor for commercial establishments, was to talk on "Salesmanship Applied."

The association is planning a trip to the plant of Thomas Maddock's Sons Co., in Trenton. E. Herman Moser, who is in charge of the arrangements, announces November 13 as the date, and states the members making the trip will be taken through the pottery plant and entertained at the Trenton Country Club.

Secretary Robert H. Pflug-Felder announces regulations of the Philadelphia Bureau of Water on repairs to leaky services. These provide that appointment for inspection must be made with the inspector of service repairs 24 hours in advance, and that ditches backfilled before inspection must be re-opened to permit inspection. Plumbers failing to comply with these regulations will be placed on the inactive list.

George F. Uber, chairman of the apprenticeship committee, has broadcast a notice about the work of the American Vocational Association, which meets in Philadelphia in December. The local convention committee needs funds to properly handle this convention, and Mr. Uber suggests contributions from master plumbers interested in the development of apprenticeship and other forms of vocational education.

WISCONSIN OFFICERS ATTEND ZONE MEETINGS

Lewis R. Friend of Milwaukee, president of the Wisconsin Master Plumbers' Association, and Jacob Schuh, prominent Milwaukee plumber and past president of both the local and state organization, attended a zone meeting recently at Wausau, Wis. On Saturday, November 3, the men went to Beloit, Wis., to attend another zone meeting.

A New Showroom in Berkeley, Calif.

WHEN J. H. Jevons, Berkeley, Calif., moved into his new quarters and established a showroom at 2330 Shattuck avenue, it was something of an event, as 400 interested visitors thronged the establishment on the opening date.

"An adequate display creates a real hunger for modern sanitary facilities—a hunger for home betterment, which concerns him more vitally than anything else," is the way Mr. Jevons sums up the merchandising idea.

VIRGINIA EDUCATIONAL BUREAU ISSUES FIRST NEWS BULLETIN

In the first news bulletin of the Virginia Plumbing and Heating Educational Bureau, the body formed by wholesalers and plumbing and heating contractors for the betterment of the industries in that state, some suggestions are given to both branches of the trades.

Eight suggestions to plumbing and heating contractors are as follows: (1) Put in Plumbing and Heating Industries Bureau books or their equivalent; (2) have an attractive office and display room; (3) be prompt, whether in doing a job, sending a bill or collecting your money; (4) do some advertising; (5) study time payments, and prepare yourself to handle them; (6) become active in civic affairs; (7) attend group meetings held by the educational bureau in different sections of the state; (8) support the industries.

The educational bureau has seven ideas for wholesalers' representatives. They are to: (1) talk up the work of the committee with all customers; (2) be on the alert to learn customers' problems and report them to your chiefs or the bureau; (3) promote the use of books and the other services of the Plumbing and Heating Industries Bureau; (4) urge customers to have a proper display and advise and assist them in setting it up and changing it often; (5) spend the time now used in gossip in promoting the activities of the industries; (6) when group meetings are scheduled in a territory, make an effort to have customers attend; (7) constitute yourself a personal representative of the educational bureau to spread its gospel of better business and better understanding.

NEW ASSOCIATION HEARS INTERESTING TALK

The recently formed Belleville, N. J., Master Plumbers' Association held a stag dinner on Friday evening, October 26, having as its guest B. Joseph O'Donnell, of the Plumbing and Heating Industries Bureau. Approximately 30 members turned out for the affair, listening to Mr. O'Donnell talk about sales promotion and also hearing a large list of other speakers. William N. Chesnut, state president, and Charles J. Samuel, state secretary, both of Montclair, spoke on organization work, and outlined the work being done toward the establishment of a permanent showroom in Montclair.

Ira Morris, executive clerk of the Newark association, explained the small claims court, and Eugene Sullivan, health officer of Nutley, spoke on the plumber from the health officer's standpoint. He was followed by Edward O'Connor, health officer for Belleville, who also spoke briefly. An interesting speaker was William Jacobson, a pioneer master plumber of Belleville, now retired. Mr. Jacobson, who was a charter member of the Newark association almost two score years ago, reminisced of plumbing in former days.

The affair was held under the auspices of the educational committee, consisting of Chairman Joseph Priester, E. A. Hicks, William B. Watson, W. J. Barrett, John Mazza and J. O'Connor.

MASTERS AND SALESMEN HOLD JOINT MEETING

A joint dinner was held by the Master Plumbers' Association of Wilkes-Barre, Pa., and the local chapter of the National Association of Plumbing and Heating Salesmen at the Dresden Hotel in that city, on Friday evening, October 26, approximately 100 masters and salesmen turning out.

There were several speakers of interest. President F. Dockery, of the salesmen's body, spoke on the aims and hopes of the national and local salesmen's associations, and William Cooper, of New Jersey, national secretary of the order, talked on the value of courtesy and consideration in all dealings between buyer and seller.

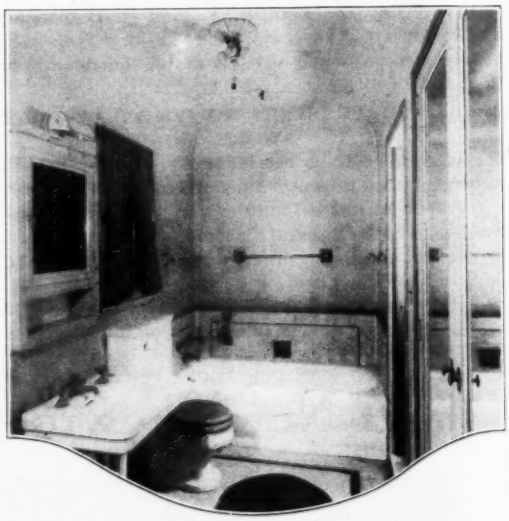
W. B. Wagner based his talk on competition and cooperation, showing how it was possible for both to exist in business relations, and Richard Turner, past president of the Pennsylvania State Master Plumbers' Association, told of the benefits to be derived from effecting a close social and business relationship between the two organizations. This resulted in the naming of a committee consisting of the Messrs. Brady, McCarthy, Wagner and Turner to draw up a resolution to present at the next joint dinner, which will be held some time in November, according to plans.

LOCAL ASSOCIATION CHANGES NAME

The Arlington County Master Plumbers' Association, the membership of which centers in that county in Virginia, has changed its name to the Master Plumbers' Association of Northern Virginia.

Color in Bathrooms

This is the third of a series of articles on the use of color combinations in bathrooms. The purpose of the series, as previously stated, is to give master plumbers an idea of the different shades that go well together. The bathroom pictured here shows what can be done with contrast, the two principal colors used being cream and light green.



The tile used on the floor in this room is light tan, hexagon in shape.

The tile base is light green, as is the border in the floor.

A trifle darker shade green rug is used.

The tile around the tub matches the floor.

The tub, lavatory and closet bowl are cream color.

Fittings on tub and lavatory are light green.

The soap dishes and bases of towel racks match the fittings.

Towel rack bars are plain glass.

The ceiling and walls are a shade darker than the floor.

The closet seat is green crackle finish.

The curtains are a little darker than the walls and have a flowered design.

A black marble seat is installed in the shower room.

"A Plumber's Nightmare"

(Continued from Page 39)

Pa.) says that these drains need not be vented. I think they should be vented."

Inasmuch as venting would seem to be a superfluous

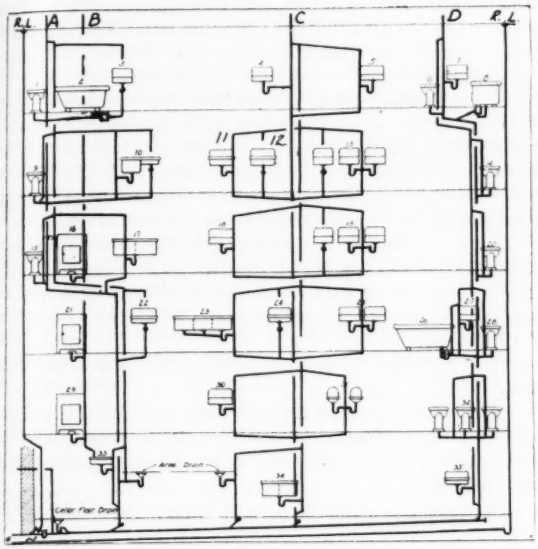


Fig. 6

expense unless there is the danger of siphonage to be overcome, we would think it unnecessary to vent these drains, as we cannot see that there is any danger of siphonage.

The letter continues: "Our code says that refrigerator drains must be trapped at the bottom of the line only. I think that is wrong, too." Referring to the connection of refrigerator drip sink into a rain leader, as shown in the original problem, the letter calls attention to the fact that "The trap is liable to siphon, especially in heavy storms. Sewer gases could then pass through and enter the house, as the rain leader connects on the sewer side of the main trap."

We would be very much opposed to a trap placed at the foot of the refrigerator stack, and think the method shown in Fig. 6 to be excellent.

Further comment is that "The wash trays should be connected individually, although here shown installed with only one trap." We think the universal practice is to use but one trap on a set of either two or three wash trays, but it is best to make the separate waste connections as short as possible, and this may best be done by placing the trap in as central a position as possible, as in Fig. 3.

The cellar drain enters the house drain in a direction opposite to the flow.

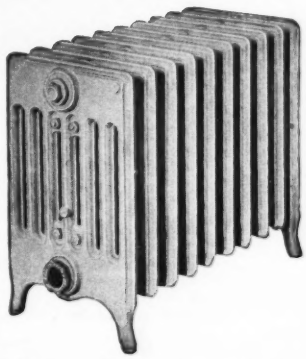
Eleven and 12 might well have a unit vent.

Inasmuch as a separate storm sewer is available, it seems to us that the cellar drain and the area drains should connect into it.

From Seymour, Wisc.

Fig. 7.—This plumbing layout is excellent, and we have no criticism to make. We are glad to discuss a number of its features, however. Before doing this we want to make this drawing the object of special suggestions whereby the work of reproducing these drawings for publication may be lightened.

This drawing was not redrawn, but is reproduced from



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Your jobber can supply you.

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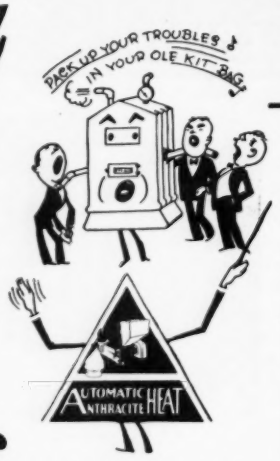

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The briefest investigation will prove to you that ANTHRACITE is the SAFE FUEL. With the Electric Furnace-Man ANTHRACITE gives automatic uniform heat without danger, smoke, smudge or odor. ANTHRACITE becomes the Perfect Modern Fuel—Safe—Clean—Efficient—Economical.

The Electric Furnace-Man burns the lower priced buckwheat or rice sizes—automatically feeding coal to the firepot and removing ashes to a dust-tight container. *It pays for itself out of savings.*

Have you seen it operate? That's the fascinating part of it. The entire system is in sight! You can see the fuel—watch it feed—watch it burn. Nothing hidden to wonder and worry about. Nothing to cause deterioration in furnace or boiler.

For any size home and any system—steam, vapor, warm air or hot water. Now on demonstration everywhere.

Also for hot water supply—any heating purpose

Authorized Distributors in principal cities.

Patented Product of

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the original drawing sent in. While this is a fine layout, we want to use it as an illustration of how these drawings may be improved. One value of plumbing drawings is to enable the contractor to show a neat layout to a prospective patron who is considering a remodeling job, for instance. If the drawings are neat, they will convey a much better impression. If properly done they convey the impression that the plumbing work will be as accurate and neat as the drawing. Now study this drawing. If drawn on better paper and with a ruling pen, it would present a better appearance. The lines might have been a little heavier. Another point is that the numbers given to the various fixtures, also the lettering, is too small. Some of the parallel lines are drawn too closely together. This defect is particularly noticeable in the lines showing the rim of a sink, the cover of a set of wash trays, etc. The suggestions for improvement here implied are meant for everyone sending in drawings, and are not given in a spirit of criticism but for the benefit of the work.

As in the case of Fig. 6, a letter accompanies this drawing, which pleases us very much, and from which we quote as follows:

"This drawing is in accord with the Wisconsin state code.

"Some of the reasons for not using a main trap are that it retards the sewage, acts as a sewer gas producing agent, and prevents proper ventilation of the sewer and drainage system.

"The floor drain is not vented, the code stating that a

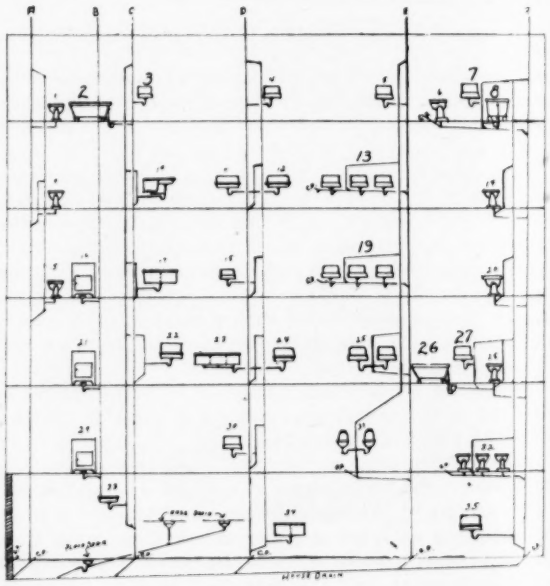


Fig. 7

basement floor drain need not be vented if located within 5 ft. of a stack.

"I believe that the best connection for an area drain is a yard catch basin, in which the deeper seal overcomes the danger from sewer gas. Moreover, there would then be no danger of flooding the basement, as there would be in the case of connecting to a floor drain if the latter became clogged.

"It is poor practice to connect the drip sink to the rain leader, as it would be sure to be siphoned during a storm, and if the leader should ever clog up there would be a flood through the sink connection during a downpour.

"The Wisconsin code allows the wet venting shown in connection with 2 and 3, 7 and 8, also 26 and 27. This

connection and the connection of a lavatory into a 2-inch or larger toilet vent is the only wet venting allowed by the Wisconsin code. I favor these two forms of wet vent, but no other forms.

"Lavatory groups 13 and 19 are circuit-vented, this practice being allowed in Wisconsin. Is there any objection to it?

"Combination fixtures and wash trays require but one trap according to the Wisconsin code."

(Note: The figures above referred to are made larger on original drawing by "Domestic Engineering.")

The foregoing comments are first-class, and we are quite in agreement with them. Regarding the practice of applying the circuit vent to a battery of such fixtures as lavatories, sinks, etc., Wisconsin we believe to be one of comparatively few states or municipalities which cover the subject definitely. The large majority of plumbing codes avoid the subject, whether purposely or not we do not know. Many codes specify this form of vent for water closets, trap standard slop sinks and urinals. A few add shower baths, but very few include any of the elevated fixtures. Just why this is we do not know, for in our opinion it is good practice, providing the main is of sufficient size.

UTICA ASSOCIATION FORMS COLLECTION AGENCY

A collection agency was recently formed to collect bad accounts for members of the Utica (N. Y.) Master Plumbers Association. When a member has an account that he has been unable to collect he turns it over to the association. All members are constantly advised by the association of bad accounts sent in by members. In this way unnecessary bad risks are avoided and many accounts that were given up as lost are collected.

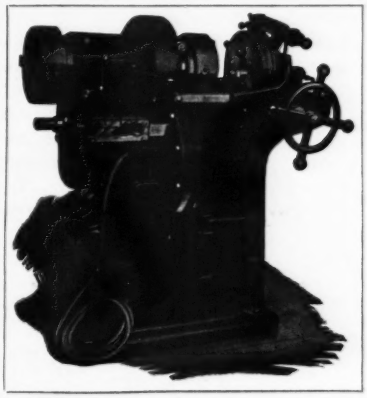
SOME AVOIDABLE TROUBLES IN HOUSE HEATING

"Some Avoidable Troubles in House Heating" and "Radiator Heating of Old Homes" were the subjects of an address by Homer R. Linn, before a special meeting of the Illinois Master Plumbers Association, at Mount Vernon, Illinois, on October 12. Mr. Linn, who is chief engineer of the western executive office of the American Radiator Co. at Chicago, and known far and wide for his study of chimneys and chimney construction, was invited by the Illinois Master Plumbers' Association to be present at this meeting for this discussion.

Mr. Linn believes that the heating contractor can do much to alleviate the trouble caused by poor chimneys and asserted that the prevention is much easier than the cure. "All chimneys," he said, "should be tested, new chimneys for constructional defects and old chimneys for faults that may have been in the chimney from the beginning, or that might have developed later.

The orthodox method of burning tar paper in the furnace and placing wet newspapers on the top of the chimney was recommended. It is remarkable the number of defects which may be revealed in this way. Apertures which no one would suspect are located easily by this method.

Dirty boilers are common sources of trouble, said Mr. Linn. Two methods were recommended. In one test the boiler water is drawn from the petcock under the gauge glass, and the water is boiled in a clean pan over an open flame. If the water foams badly it is an indication of dirty water. Another test is made by getting up 8 or 10 pounds of pressure, then holding the pop valve wide open for two minutes. If nothing but dry steam comes out, the water is all right, but if water comes out with the steam, the boiler needs cleaning. If dirty water is found by



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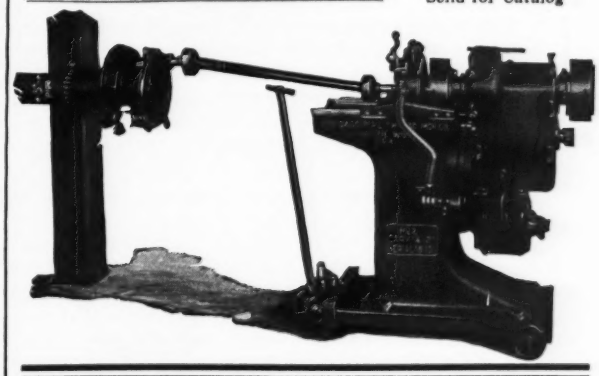

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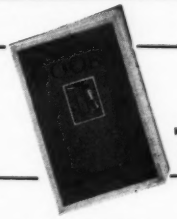

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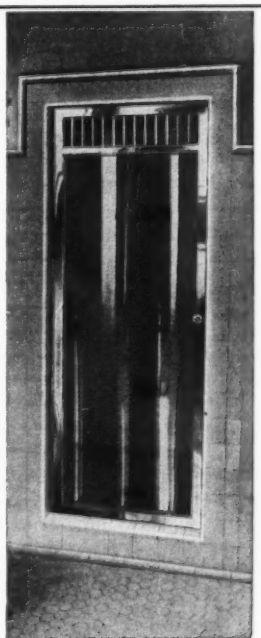
The Kapock House
2011 Walnut St., Philadelphia, Pa.

Crist & Schilken Co.
Inc.
Pittsburgh :: Pa.



C & S 632 Patented June 12, 1923

either of these tests, the boiler should be cleaned out thoroughly by this "over-the-top" method.

Selling radiator heat to owners of old homes is an activity engaged in profitably by a great many heating contractors. However, it needs frequent repetition, and Mr. Linn spoke in a very convincing manner of the profits to be had by developing this field. He emphasized the fact that the trade would have to adopt progressive methods of merchandising to get its share of the business.

The right kind of heating system, he said, means a great deal to the house owner, but he is likely to forget this and spend his money on highly advertised luxuries if he is not reminded frequently of the comfort and convenience of radiator heat.

This was the regular semi-annual meeting of the southern division of the Illinois Master Plumbers Association on October 11 and 12. A banquet was held on the evening of October 12. Dick Johnson of Champaign, Ill., president of the Illinois Master Plumbers' Association, presided at the meeting.

The Philadelphia Market Development Program

By E. L. Flentje*

I WILL NOT concern myself in this talk with the details of how the Philadelphia Market Development Plan was evolved. It suffices to say that the plan in its entirety was developed by the Sales and Advertising Committee of the Plumbing and Heating Industries Bureau. Nor will I enter into the details of the basis of cooperation between the Plumbing and Heating Industries Bureau and the Plumbing and Heating Development League of Philadelphia.

I have some charts, which I have brought for two purposes. The first is to make a definite record of the facts which I am to talk about, and the second is to maintain your interest in what I have to say. I am sure that they will serve their first purpose, but I trust that the importance of the work being carried on in Philadelphia, and the pertinence of the facts deduced from such work, will be so self-evident that no oratorical subterfuges will be necessary to hold your interest.

I assume that you gentlemen are interested primarily in what has been done and the means whereby these accomplishments have been made possible. Briefly, our activities have embraced the following fields: market analysis; retail outlet survey; analysis of consumer buying motives; newspaper advertising; direct mail advertising; sales instruction; window display; bookkeeping; community exhibits of our industries' products.

WHAT CONSTITUTES A GOOD MARKET ANALYSIS

WE HEAR much these days of market analyses and the value of statistics in business, and the committee in its formulation of the Philadelphia Market Development Plan was not unmindful of the need of a critical and analytical picture of the zone in which the plan was to operate. It is the first principle in market analyses that, in order to be satisfactory and practical, one must be able to answer the following questions: What are the prospects? How many of them are there? Where are they? Who are they? Many market analyses of a quantitative character stop with the first two questions. We believe that we can demonstrate to you by the materials we now have that we are able to answer all of the questions, and that we have built a bridge from the manufacturer through the normal channels of our industries to the doors of every single prospect in Philadelphia able to purchase our products.

I recognize that many of the figures on this first chart will be of little interest to you, except that they will give you an idea of the area in which we are operating, and the number of people whose consciousness we had to influence in the interests of our industries. It also points out the scope of the work and implies at least a portion of the many difficulties which are inherent in a sales promotional campaign over an extended area.

When we entered the Philadelphia market we were under no misapprehension that it was a typical market; we realized that Philadelphia, both psychologically and quantitatively, could be matched by but few communities in the country. In fact, Philadelphia has the reputation of being the most stubborn nut to crack in the whole merchandising field. It has a traditional background that militates against high pressure methods and a merited self-satisfaction that eschews the novel and the spectacular.

Here, in this arena of over two million people, the test was conducted. Philadelphia has been heralded as the City of Homes. How well this appellation has been merited can be measured by this chart. We find that there are roughly 469,000 families, living in 429,000 dwellings; making an average of four and one-half persons to the family. We note that 58.9 per cent of the homes are owned and 41.1 per cent are rented. Of the owned homes 70.8 per cent are encumbered and 29.2 per cent are owned clear of encumbrances. When we examine the income per family, we find some startling facts: first, that, despite the average of two people gainfully employed in each family, the average family income is only $2,581. This figure is far below the average of urban communities in the United States, and points to the inevitable conclusion that a further examination and segregation of families is necessary if we are to delineate and define the real market for our industries' products. I doubt if families with an average income of $2,581 are able to purchase the better grades of goods, or that their tastes are developed to such a degree that they can appreciate the value of modernity.

INCOMES BROKEN INTO BUYING GROUPS

LOWER down on the chart, we have broken down the families into rough income groups, so that you may see just how many of each income strata we had to work on. It shows that only 15 per cent of Philadelphia families have incomes over $3,000 per annum, and, surprising as it may seem, 22 per cent have yearly incomes below $2,000. When we consider the statements of authorities on living standards, we must come to the conclusion that Philadelphians in the lower income groups are leading precarious existences indeed. Let us examine these incomes in the light of generally accepted opinions regarding the incomes needed to purchase certain standard articles. By referring to the next chart, we see

* The above talk was made by Mr. Flentje at the recent Advertising and Sales Managers Conference of the Plumbing and Heating Industries Bureau, held at the Palmer House, Chicago on October 25 and 26.

listed certain familiar articles and the incomes necessary to purchase them. These figures were determined by letters written to 415 manufacturers of these products and the replies averaged. In the third column appears the number of families in these income classes in Philadelphia. I have refrained from putting any plumbing or heating material on this chart because ascertainable data regarding the income necessary to purchase our industries' products are uncertain. Some manufacturers replied, "Anyone can purchase my material." Others replied with such a low figure as to imply that they had entirely overlooked the lowered tastes that go with low incomes. I believe that we are floundering around unless we know more about the incomes necessary to purchase the different kinds of material we have to sell. But to return to the chart: The huge figure of 469,860 families inclines us to overestimate our market—we unconsciously think of hoards of people able to buy our products; but when we examine the standards necessary to purchase our industries' products we realize that all too few are able to buy our material. If only a small portion of the people are able to buy, it is incumbent on us to ascertain where they are; thus answering the third question incident to market analysis. We found the answer in Philadelphia, as is evidenced by the next chart.

PROSPECTS ANALYZED BY RESIDENTIAL DISTRICTS

WE HAVE now answered the questions of "What are the prospects?" and "How many prospects are there?" The next question to be answered is, "Where are these prospects?" and I invite your consideration of the next chart. This chart shows the city of Philadelphia split up into 43 economic zones. You will observe that each of these zones follows a rather irregular contour, but to anyone who is familiar with Philadelphia, the reason for these irregular divisions must be obvious. It is a well-known fact that people of like economic circumstances tend to congregate in well-defined areas, and these 43 economic zones show 43 more or less homogeneous spheres in which the economic characteristics of the people are similar. This study, embracing some 640,000 people, was made on the basis of visiting each tenth home on each street in Philadelphia, ascertaining the occupation of the home owner and the income of those gainfully employed in the family. Those red lines of demarcation, while not absolutely accurate, are close enough for the purpose of this study. You will observe that the incomes fluctuate between $1,300 per family in one zone, to an average of over $13,000 in other zones.

What is the significance of this to our industries? It points an arrow directly to those sections of the city in which the products of our industries may be profitably sold. If the manufacturer or wholesaler has ascertained that a certain income per family is necessary for a particular piece of merchandise, it must be obvious that all families with an income below that figure are not in a position to make the purchase. He can, unerringly, with the aid of this chart, direct sales and promotional efforts to those portions of the city where prospects abound, and may disregard with perfect safety those sections of the city in the lower income groups. This effects a saving of time and concentrates sales and promotional activities in sections productive of results. Before this study was made, such selective merchandising was impossible. It meant that the manufacturer or wholesaler tried to blanket the city; but the map proves beyond question that a great deal of such effort was wasted, except in the case of products which could be purchased by all of the population.

You may say, "This is interesting news, but it has no

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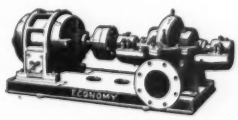
Automatic Sump Pump

When it comes to the pump requirements of the new project, you will find Economy's special knowledge and facilities useful.

Pumping problems that are rarely met in your business are continually faced by a firm, such as ours, that specializes in them. Our data, therefore, may be useful to your superintendent or estimator. It is at his disposal, and suggestions will be freely offered.

Economy has pioneered in the field of pumping equipment for 21 years, and its designs are in advance of the times. Whether you merely invite our suggestions, or leave the entire problem in our hands, you may be assured that the finished installation will be beyond reproach.



General Service Single Stage Centrifugal Pump

Special bulletins on all types of pumps—for water supply, sewage disposal, boiler feeding or heating—available on request. A postcard brings one.

Economy Pumping Machinery Company
3431 West 48th Place, Chicago
Representatives in Principal Cities—Telephone and address under Economy Pumping Machinery Co.

Economy Pumps

AUTOMATIC COAL BURNER

FEEDS COAL TO THE BOILER
REMOVES THE ASHES
REDUCES COAL BILLS
SAFE
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DEALERS WANTED

WRITE TO
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121 Livingston St. :: Brooklyn, N. Y.

WEIL PUMPS *for Better Service*

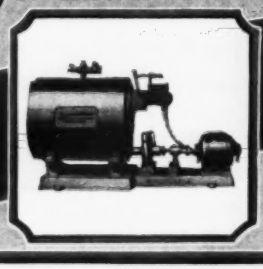

Fig. TR-1001 Weil "Tujur Return" Condensation Pump and Receiver.

Write for Bulletin TR-100

Few Agencies Still Open.

Weil Pump Co.
215-7 W. Superior St.
Chicago, Ill.

You've got to try Raymond Lead Roof Flanges to really know how capable they are of reducing your time and service costs. They are made from pure drawn lead, NOT cast. You will find them very easy to install. No caulking is necessary. They cost no more than the inferior grades that cost so much in service.

LEAD PIPE
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You Don't Gamble With a Martin

Buying a Martin Portable Vise Stand and Pipe Bender removes the last element of chance in all vise and pipe bending work.

The Martin does all your work thoroughly, safely and in the shortest time.

Your jobber has them

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practical application because it does not clearly define the market by answering the fourth and last question, namely: 'Who are these people?'" At the outset of this talk, I told you we could answer all of these questions. By referring to this next chart you can see you have a concrete answer to "Who are the prospects in these economic zones?" We have listed here 325,000 names of people who own and reside in their own homes. It takes but a moment's reflection to realize that these are the only prospects we have in our industries. Lodgers, tenants and renters of homes are not in a position to purchase our industries' products. This list of names is arranged by streets and by wards so that anyone interested in exploiting any section of the city has ready at hand a mailing list of every one of our prospects in the area under consideration. These names were secured from municipal records, and I may say, in testimony of their accuracy, that out of a mailing to 22,500 people on this list only 52 were returned as being untraceable, an inaccuracy of less than 2/10 of 1 per cent.

I believe we have demonstrated that the analysis of the Philadelphia market is equal in completeness to anything that has been done in any industry. I base this statement largely on the interest which has been displayed by other industries in Philadelphia and on their attempts to secure this list of prospects I have mentioned before. It goes without saying that the list is the exclusive possession of our industries and is available to anyone with the proper bureau affiliations.

We have now completed the study of our market in Philadelphia. We have answered the four questions we set out to answer, namely: "What are the prospects?" "How many of them are there?" "Where are they?" "Who are they?" Our exposition of these facts may have aroused some desire in your minds to get similar information in the other markets in which you are interested. I want to assure you that such information can be secured at a minimum of expense. There are fact-finding agencies in almost all of the larger cities; newspapers, chambers of commerce, national magazines, and municipal authorities have a tremendous amount of information available that needs only to be sifted and presented to be of inestimable value to our industries. Most of these statistics I have been talking about have been the result of other people's work. We merely assembled them and made them available to our industries.

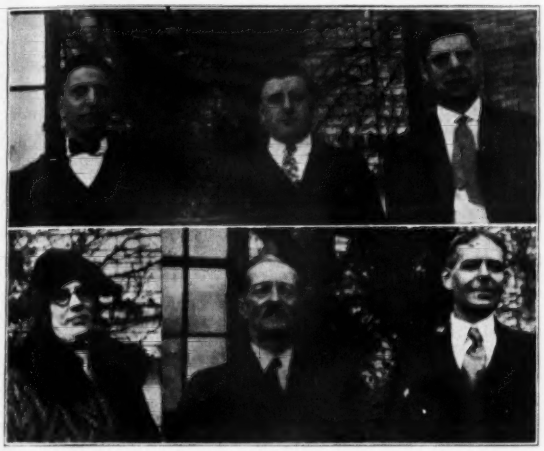
ANALYZING THE PHILADELPHIA MASTER PLUMBER

QUITE naturally, the next consideration which enters into the merchandising problem, once the market analysis has been completed, is: "What are the tools with which we have to work?" In our case, naturally, selling as we do exclusively through the channels of the master plumber, our next consideration should be "How many of them are there?" "Where are they located?" "What kind of display facilities have they?" "What energy are they likely to use in pushing our products?" I think these four questions can be answered definitely with the following charts:

There are 1,856 master plumbers and heating contractors in Philadelphia, although only 1,652 of them are engaged in business. The difference between these two figures is accounted for by the number of master plumbers and heating contractors employed by buildings, corporations and others. An examination of the succeeding figures discloses a surprising situation. Of the total number of master plumbers and heating contractors in business, only 13 per cent have showrooms and 31 per cent have display windows. As a basis of comparison, I have

also given the figures on those master plumbers and heating contractors who are members of the association. My purpose in doing this was to show that groups organized within our industries are on a higher plane than the total engaged in their particular line of endeavor. As opposed to 14 per cent of the total having showrooms, 25 per cent of the association have showrooms; and as opposed to 31 per cent of the total having display windows, 47 per cent of the association members have such facilities.

We made personal visits to these 1,652 contractors for the purpose of evaluating them as retail outlets. We



Top row: R. P. Rail of Williamsport, Pa.; J. H. Barnes and J. N. Knoll, both of Cleveland. Bottom row: Mrs. E. H. Ellis of Detroit, James S. O'Hagan of Washington, D. C.; William H. Mabie of Newburgh, N. Y. Photos taken at the recent conference of plumbing and heating instructors in Pittsburgh

first examined the appearance of their places of business; we next talked to them about their attitude toward aggressive merchandising, their plans for the future and their financial responsibility. On the basis of these interviews, we assigned grades of "good," "fair" and "poor" to each of the retailers in the city. Examining these figures, we find that 17 per cent merited the classification of "good," 46 per cent "fair" and 37 per cent "poor." Compared with these figures, we find that among association members 35 per cent are "good," 49 per cent "fair" and 16 per cent "poor."

Our next consideration is: "What impression are retailers making upon the public?" This can best be determined by ascertaining their locations. We find that only 36 per cent of the contractors in Philadelphia have any external evidence of being in business. By that I mean that only 36 per cent have a location that remotely resembles a retailing establishment, or have other signs of being engaged in the plumbing and heating business. As opposed to this figure, 50 per cent of the association members have reasonably desirable locations. I have here a tabulation showing where the retailers are located in Philadelphia. It is an unfortunate situation, indeed, when 65 per cent of our retailers cannot be found by the consumer.

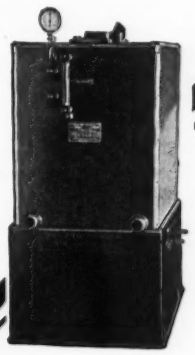
When we examine the location of our retailers in terms of their proximity to the buying public in the various economic classifications I have spoken of before, we get an entirely different picture than the one generally thought of in our industries. On a national basis, I believe that it takes 1,000 families to support a contractor in business, but in Philadelphia each retailer has only 306 prospects with which to do business, and an examination of

BRYAN BOILERS

for

Oil and Gas

only



Throw away your Shovel!

WHO likes to shovel coal anyway? This disagreeable job is first shifted from Dad to Mother, to eldest Son . . . and finally in desperation it is decided that the neighbor's small boy needs a chance to earn some pocket money. This arrangement is fine for a short while, then . . . another change is necessary.

. . . This, or a similar situation exists in thousands of American homes, and has been the cause for the rapid rise of oil as a fuel for house heating. Consider for a moment the vast selling possibilities which the BRYAN BOILER offers. Here is a product which eliminates all of the above evils, and, at the same time, guarantees economical oil consumption. The Bryan dealer franchise offers an opportunity for the dealer to cash in on the demand for modern heating appliances.

Investigate our dealer proposition—TODAY!

Bryan Steam Corporation

(Boiler Division)

Peru, Indiana

the tabulation discloses that master plumbers tend to concentrate their efforts on home owners with family incomes from $2,000 to $4,000. At least competition for this type of business is more acute than in the higher economic groups. All this scrambling for business and this highly competitive situation affects the paying habits of our retailers, as disclosed in the following tabulation: It shows that 20 per cent of the retailers discount their bills; 39 per cent pay when due; 12 per cent pay from 60 to 120 days after due; and 21 per cent pay after 4 months —if ever. It does not come within the province of my talk to suggest remedial measures for this situation. I wanted merely to bring a realistic picture of what is going on in Philadelphia with regard to the competitive situation among retailers.

The next chart shows the first page of the list compiled by the league on the basis of the visits I spoke of previously. This list gives the name, address, physical characteristics and rating of every retailer in Philadelphia. This list has been used in connection with the market study very successfully, because it is the last link in the chain I spoke of previously, leading from the manufacturer through the normal channels of our industries to the ultimate consumer. In testimony of the value of these lists and the market study I discussed I want to read briefly from a letter we received from one manufacturer who availed himself of the statistical data in our possession. This letter was unsolicited and I introduce it only as evidence of what can be accomplished by making practical application of the facts available.

It seems to me that any sales promotion program undertaken in any city will be ineffectual and not productive of results if the material we have in Philadelphia is not duplicated for that community. The amount of work necessary for such a study is not as great as is popularly supposed. With this information on the market and on the retail outlets, you will be as we were in Philadelphia—prepared to undertake a constructive program of sales promotion with the knowledge of where you are headed and the tools with which you have to work.

(To be continued)

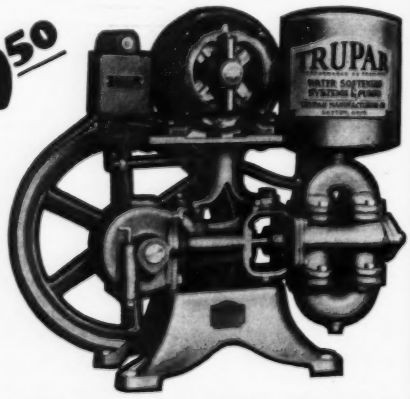
PLUMBING AND HEATING CLUB FROLIC AT MISSION INN

The fall outing of the Plumbing and Heating Club of San Francisco and the East Bay district, which took place at Sonoma Mission Inn, October 19, 20 and 21, will go down in the history of the club as one of the best outings ever sponsored by that organization. A factor which contributed largely to the success of the occasion, and which added much gaiety and color, both at the big dinner dance and on the golf course, was the presence of the ladies. This is the first time the club has thrown open its outings to include their families; but the plan has proven so popular that there is little doubt of its continuance at future spring and fall outings.

The majority of the club members and their families arrived Friday night. Others turned up just in time for the dinner-dance Saturday evening. Right after breakfast on Saturday, golf bags were shouldered, horses mounted, hiking outfits donned, warm-ups arranged at the horseshoe pitching field, or a quiet hour or two enjoyed before the immense fireplace in the lobby, depending entirely on the moods or inclinations of the club members. Saturday was very much of an "open" day. No schedule had been arranged, and everyone felt at liberty to do exactly as he or she pleased.

The dinner-dance that evening was a brilliant affair, held in the convention hall, immediately adjoining and open-

$69.50



Sectional construction, each part quickly removable.

Double bearing drive shaft.

Eccentric drive of semi-steel and bronze.

Splash lubrication.

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Oversize phosphor bronze bearings, cross head, and wrist pins.

Valves removable without disturbing lines.

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TRUPAR

Quality-built, compact, Fresh Water Systems, delivering 250 gallons per hour, under pressure, at 22 feet vertical lift.

The Trupar offers greater capacity and finer features of construction, at a lower price. Make your own comparison. Built by men who know how, the Trupar meets today's demand for a sturdy, efficient, good-looking, inexpensive pump. It gives "Performance as Promised."

Learn more about "The Pump that Sells Itself."

Trupar Manufacturing Company
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Here's Automatic Regulation
For Your Vacuumized One Pipe Steam Jobs

Just screw the old pressure regulator off, and screw this new vacuum-pressure regulator on. That's all there is to it. Get folder telling how to take this extra profit, with little labor cost to you.

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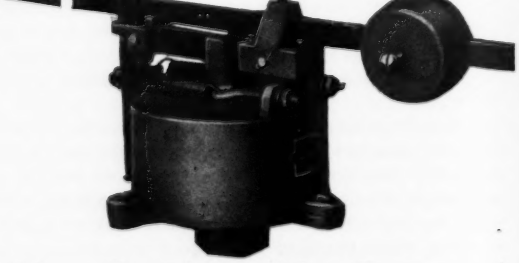
Alternating Pressure-Vacuum DAMPER REGULATOR No. 60



Hutchison Regulator Sales Corp.
12 Lispenard St., New York

Top row: Peter B. Schubert, James H. Pinkerton, James Parish, W. H. Picard; Norman Farlow presenting trophy to Harry Mank for high gross honors. Bottom row: Mrs. F. J. Chittenden, Mrs. James Parish, Mrs. W. H. Picard, Mrs. Carl J. Marsh, Frank J. Klimm, Howard Finch, James E. McIlreevy, Carl J. Marsh. Photos taken at the outing of the Plumbing and Heating Club of San Francisco

ing directly onto the big, high ceiled, mission dining-room. During the course of the dinner, Frank J. Klimm, chairman of the outing committee, and the one largely responsible for the success of the occasion, announced the program for the following day. This was to consist of golf tournaments, a bridge party, horseshoe pitching contests and other events, with prizes offered the winners.

In spite of carefully laid plans, many promises to arise early the following morning and enjoy a nine-hole round preliminary to the tournament play, were broken. The inducements offered by the cool, early morning air of the mountains were too much to be overcome—early dates were disregarded.

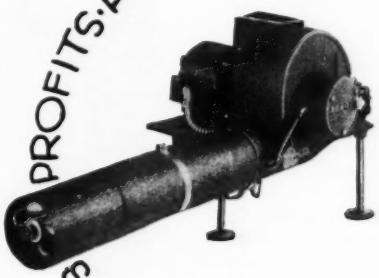
Meanwhile, interest in the horseshoe pitching contest had reached fever heat. In the preliminary round, James Parish rolled up a winning score ahead of W. H. Picard, while Peter B. Schubert was going down to defeat at the hands of the veteran horseshoe pitcher, James H. Pinkerton, and Tom White was getting the short end of the score due to the rare form of his opponent, Ralph Olsen. In the semi-finals, James Parish suffered badly at the hands of Mr. Olsen. The finals, between Ralph Olsen and James H. Pinkerton, drew a big gallery, and as the scores tightened up, rival cheer-leaders redoubled their efforts to encourage their favorites. But in spite of a strenuous rally staged by Pinkerton, Olsen succeeded in bunching his ringers and leaners to win the match.

A bridge tournament had been arranged for the ladies who were not playing golf. After a delightful forenoon spent in the bridge room adjoining the spacious lobby, the final score determined the winner to be Mrs. James Parish, whose point score came to 811. Other high scores were: Mrs. W. H. Picard, 783; Mrs. Carl J. Marsh, 539, and Mrs. F. J. Chittenden, 501.

While no very outstanding scores were turned in, a feature of the play was the unerring driving and putting of Thomas Douglass, whose 90 entitled him to low gross honors in Class A. The club's president, Howard Finch, shot a pretty game to capture the B class trophy. In Class D, Harry Hoopes took his ball over the course in a flat 100. Among the ladies, Mrs. Robert Lees turned in the best card, her mark of 114 entitling her to the sterling silver trophy. Although a fairly consistent winner, Mrs. James E. McIlreevy didn't quite play up to her usual form. In the ladies' tournament, those who turned in scores were: Mrs. Mont. E. Henderson, 124; Mrs. Frank J.

The Center of Oil Heating Profits

PROFITS·PROFITS·PROFITS·PROFITS·PROFITS·PROFITS·



Hundreds of people are only awaiting the presentation to them of a superior oil burner. They are sold on oil heat, and why shouldn't they be, but they need a product like Rexoil.

Maybe you too have been waiting until you could present to your customers the perfect oil burner. Rexoil is what you have been looking for.

Listed as Standard by Underwriters' Laboratories, Inc.

Prove it to yourself. Write us for all the complete information.

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BUFFALO :: N. Y.

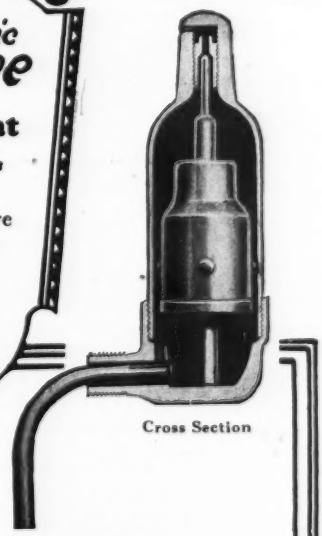
THE
"Air-Out"
Syphon Thermostatic Air Valve

A Large Float

Heavy Cast Brass Base

Free sample valve for testing for the asking

All metal, non-adjustable



Cross Section

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Guaranteed Five Years

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All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
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"Junior Flashings"

Tank Fittings of Quality

1856 "McSHANE" 1928

The ORIGINAL Compound Lever Ball Cock. Elevated, Low-Down, Top and Bottom Supply Tank Levers and Valves.

Our Catalog is

McSHANE BELL FOUNDRY CO.
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Patented

You're buying years of careful manufacturing experience when you buy Signet Floor Drains. They're real insurance against floods and poor health.

SIGNET Floor Drains

Ask your jobber about them or write us direct.

CRAMPTON-FARLEY BRASS CO., Kansas, City, Mo.

E-Z
RADIATOR HANGER

for ALL Tube Type Radiators

The most complete stock on the market—ready for immediate shipment from principal cities. Use this strong, simple, one-bolt hanger. It pays to insist on the E-Z.

HEALY-RUFF CO.
770 Hampden Ave. St. Paul, Minn.

Top row: Robert Lees, Curtiss N. Gilley, Thomas Douglass, Walter Mead, Mrs. Frank J. Klimm, Rod Guyette, Mrs. James E. McIlreevy. Bottom row: Mrs. Mont Henderson, Mrs. Robert Lees, Harry Hoopes, Mrs. H. Porter Wilson, F. J. Chittenden, Harry Mank, Mont Henderson, H. Porter Wilson. Photos taken at the outing of the Plumbing and Heating Club of San Francisco

Klimm, 119; Mrs. Robert Lees, 114; Mrs. James E. McIlreevy, 125; Mrs. H. Porter Wilson, 126.

Among those whose scores were entered in the men's tournament were:

	G.	H.	Net
Finch	103	20	83
Klimm	96	16	80
Marsh	101	11	90
McIlreevy	92	10	82
Douglass	90	12	78
Gilley	115	22	93
Lees	104	16	88
Mead	113	25	88
Chittenden	135	33	102
Henderson	118	29	89
Mank	155	35	120
Wilson	107	17	90
Hoopes	100	32	68

During the latter part of the golf tournament, a chef, a corps of waitresses and a generous supply of provender for the barbecue feast arrived from the hotel. By two o'clock, juicy, brown cuts of beef and equally tempting chickens were sizzling over the big open fire. The outdoor dinner was served in the shade of the oak trees in front of the club-house.

During the course of the dinner, Norman Farlow made suitable presentation talks as he distributed the various trophies for all events. Coming as a surprise to everyone, most of all to the recipient of the honors, was the award of a cleverly made loving cup to Harry Mank for his high gross score in the golf tournament. This loving cup was a work of art from the steamfitter's standpoint, the trophy being made entirely of pipe fittings, to which had been applied a generous coat of aluminum paint.

After the barbecue a number of adventurous souls tackled the golf course for an additional nine holes; but the majority were willing enough to return to the hotel and take it easy for the balance of the day. Sunday evening's dinner marked the conclusion of the outing.

The success which marked the occasion from first to last was largely due to the hard work of the committee headed by Frank J. Klimm of San Francisco.

JOSEPH T. MEHEGAN CALLED BY DEATH

Joseph T. Mehegan, for many years engaged in the plumbing and heating business in Fulton, N. Y., with his brother James Mehegan, now of Hannibal, N. Y., under the firm name of Mehegan Brothers, died at his home, 110 Voorhees street, on October 9, after an illness of several months. Mr. Mehegan was a member of the Fulton Lodge of Elks. He is survived by his widow, Teressa Mehegan, two daughters, Rose and Mary, and four sons, Edward J., Joseph, Jr., Vincent J. and John F. Mehegan, and one brother, James Mehegan, of Hannibal, N. Y.

Woman's Page

A survey made by the United States government in Johnstown, Pa., showed that in homes where the water had to be carried in, the death rate among infants was 198.2 per thousand, whereas in homes into which water was piped, the death rate was 117.6 per thousand. This great decrease in the rate of infant mortality should make clear the importance of running water in the home. Women in the auxiliaries located in the smaller towns can do much toward increasing the standards of sanitation in outlying and rural districts.

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Florida Auxiliary Expresses Appreciation for Storm Aid

An expression of appreciation and gratitude for the generous donations of money and clothing received by the Florida State Auxiliary in behalf of the storm sufferers is extended in the following communication received from Mrs. Roy E. Martin and Mrs. W. R. Jester, president and secretary, respectively, of the Florida State Auxiliary.

"The Florida Division of the Women's Auxiliary to the Master Plumbers' Association wishes to extend its thanks and appreciation to those who were so loyal in giving clothing, money and letters of sympathy for the storm sufferers. The following is a list of those who contributed to the most worthy cause: Mrs. Emily V. Hornbrook; Mrs. Thomas Foley Nolan; LaCrosse (Wis.) Ladies' Auxiliary; Ladies' Auxiliary of the Mid-West Sanitary Club, Chicago; New Jersey Ladies' Auxiliary; Chicago North and North West Ladies' Auxiliary; Denver (Colo.) Ladies' Auxiliary; Wichita (Kans.) Ladies' Auxiliary; St. Louis (Mo.) Ladies' Auxiliary; Emily Virginia Hornbrook Ladies' Auxiliary of Roanoke, Va.; Jersey City Ladies' Auxiliary, and Hutchinson (Kans.) Ladies' Auxiliary."

Youngstown Auxiliary Starts Fall Activities

The Ladies' Auxiliary of the Master Plumbers' Association of Youngstown (Ohio) started their fall activities recently by serving a six o'clock dinner in the club rooms to members and husbands. Twenty-eight couples were in attendance. Following the delicious meal, music, cards and "cootie" were enjoyed. Mrs. William Hoffman, Mr. A. Rudolph and Mrs. Fred Kaercher received prizes for high score. The large, attractive assembly rooms, ample kitchen and pantry in the men's club rooms make them especially adaptable for such social events. The ladies promised to serve an old-fashioned chicken dinner to the master plumbers. To reciprocate, the master plumbers entertained their wives with a dance and card party which was held on October 25 at Pioneer Pavilion, Mill Creek Park.

Jersey City Auxiliary Raises Money for Scholarship Fund

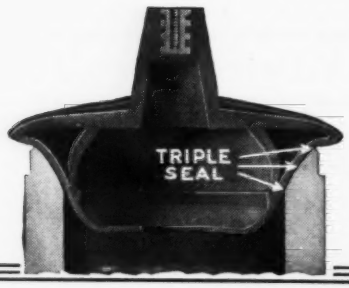
The Women's Auxiliary of Jersey City (N. J.) held its first party of the season for the benefit of the scholarship fund on Thursday, October 25, at the Masonic Temple in Jersey City. About one hundred guests were present, many coming from North Hudson and other neighboring towns. The affair, as arranged by Mrs. Charles Werner, took the form of a Hallowe'en party, and sandwiches, coffee, home-made cake and candy, as well as many other good things, were served. The party was voted a great success by all. The ladies are now planning a masquerade and dance to take place at Masonic Temple on Tuesday, November 27. Mrs. J. J. Corcoran is chairman of the committee in charge of arrangements and nothing is being left undone to have all the cheer and good feeling of the season of Thanksgiving in evidence at this affair. The ladies are hoping to have a large attendance.

Women in Business

Mrs. Zoe F. Smith

Loyalty, and the willingness and ability to make decisions, are the qualities which have enabled Mrs. Zoe F. Smith, secretary to Fred C. Kuetemeyer, well known

Milwaukee master plumber, to become an enterprising business woman in the plumbing industry. A quality of considerateness and a desire to serve are two other of the outstanding characteristics of Mrs. Smith, who has served in the Kuetemeyer establishment for the past twenty years, and who has learned to know and appreciate the



The Float that Stops the Leak

TRIPLE SEAL FLOAT

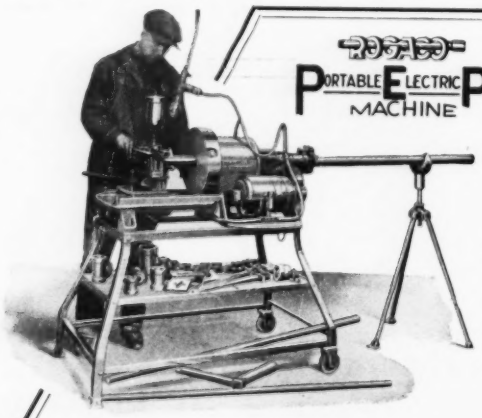
Here is a new design, a new principle, in tank balls, the Triple Seal Float. Made of purest rubber, it expands as the result of the water pressure in the tank.

The remarkable flexibility of the Triple Seal Float positively assures the stopping of any leakage due to scale, slime or sediment forming on the seat.

Exhaustive tests, made under all conditions likely to be encountered in service, have failed to turn up a single fault in the Triple Seal Float construction.

Order it from your jobber or write us direct.

Golden State Rubber Mills
1920 E. Vernon Avenue Los Angeles, Calif.



He does the work of four

One man and a ROGACO Portable Electric Pipe Machine can do the work of four with hand tools.

This remarkable machine is really portable, operating as it does from power from any electric light socket which makes it possible to use it anywhere—on the job or in the shop.

Cuts pipe, reams and threads either right or left hand from ⅜ to 2 inches.

Write for details

ROBBINS, GAMWELL & CO.
MANUFACTURERS
PITTSFIELD, MASSACHUSETTS

value and dignity of the industry in which she is engaged.

In this connection it is interesting to note that Mrs. Smith, in her social contacts outside of the office, has made every effort to overcome the thought in the minds of her friends that there is something undignified about the plumbing industry. "Some of my friends at different times have, either through ignorance or from force of habit, made slighting remarks about the plumbing industry—jokes about the plumber forgetting his tools and such things," said Mrs. Smith recently in a talk with a representative of "Domestic Engineering." "I have never let such a remark pass, despite the fact that I may sometimes have seemed disagreeable in not doing so. I have taken every such occasion as an opportunity to point out the fact that the plumbing trade is just as important as any other line of the building industry, and that it has done much to make civilization what it is today."

The quality of making decisions with regard to the business management of the office when Mr. Kuetemeyer is away is the result of Mrs. Smith's genuine interest in the business. "Whenever it becomes necessary for me to make a decision, I ask myself what I would do if it were my own business," said Mrs. Smith. "Then I go ahead and make the decision and stand by it, as long as I believe it right. I have always disliked vacillation of any kind, and believe that the ability to make decisions is one of the most important elements of a successful life, business or personal."

Her numerous friends in the industry have pointed out that she has, by her attitude in dealing with customers of the Kuetemeyer establishment, done a great deal in creating good will for the concern. Her real desire to serve, and her genuine interest in the needs and wants of the industry, have stood her in good stead—she has become an invaluable adjunct to the business establishment of Mr. Kuetemeyer.

After her husband died 20 years ago Mrs. Smith came to Milwaukee from Long Beach, Calif., where she had just completed a secretarial course. She immediately became connected with the Fred C. Kuetemeyer establishment and has been with the concern ever since.

Mrs. Jester Entertains Miami Auxiliary

The Woman's Auxiliary to the Miami (Fla.) Master Plumbers' Association held a recent meeting at the home of Mrs. Walter Jester in Coral Gables. After the business meeting, a social hour was enjoyed by all. A very dainty luncheon was served by the hostess. The next meeting will be held at the home of Mrs. H. J. Sanborn when the auxiliary will take up the subject of sanitation in Miami schools. A busy season has been planned.

Chicago Steamfitters' Auxiliary to Meet

The Women's Auxiliary to the Chicago Master Steamfitters' Association will hold its next meeting on Monday, November 19, at the Palmer House. The auxiliary's meetings are always held in the form of a luncheon, and a good attendance is expected for this November affair.

Auxiliary of Mid-West Sanitary Club Gives Successful Party

A very pleasant evening was afforded the plumbing contractors and their friends in the vicinity of Chicago, when the Ladies' Auxiliary of the Mid-West Sanitary Club gave a card and bunco party at the Columbus Park refectory on Wednesday evening, October 24. The attendance was beyond expectations, and guests all voiced their pleasure at the way in which the affair was handled by the committee. Dainty refreshments were served. The officers, who also deserve credit for the success of the party, are: Mrs. J. I. Riordan, president; Mrs. F. A. Kveton, first

vice president; Mrs. H. Swade, second vice president; Mrs. M. J. Gallagher, third vice president; Mrs. T. H. Litvin, treasurer, and Mrs. B. E. Lynam, secretary. The committee was composed of Mrs. W. P. Arnold, Mrs. A. C. Maderer and Mrs. J. G. Zajicek.

Women's Auxiliary of the Massachusetts State Association Holds Party for Scholarship Fund

On Saturday evening, October 20, the Elks Hotel at Boston, Mass., was the scene of a party under the patronage of the Women's Auxiliary of the Massachusetts State Association of Master Plumbers. This party, the first of its kind to be held by the Massachusetts auxiliary, was fostered in the mind of the president, Mrs. Charles D. Kieser, of Newton, for the purpose of raising the auxiliary's share of the money for the scholarship fund.

The party served a two-fold purpose: It not only raised the money, but brought together in a social way members from all over the state, and those who made the effort to come from a distance are greatly to be commended for the interest they showed. The proceeds far exceeded the expectations of the auxiliary and Mrs. Kieser and her assistants feel well repaid for their efforts.

UTICA HOLDS EXPOSITION OF PROGRESS

The plumbing and heating trades took an active part in the Exposition of Progress held in Utica, N. Y., from October 5 to 13. The exposition was sponsored by the Chamber of Commerce for the purpose of acquainting Uticans with products made and sold in Utica. About 70,000 people visited the exhibit.

Included in the many exhibits were 14 booths displaying heating equipment, and 10 showing plumbing supplies. All of the Utica jobbers, Chas. Millar & Son Co., Roberts Plumbing and Heating Supply Inc. and Utica Plumbing Supply Co., Inc., maintained attractive displays. In each booth at all times could be found a master plumber and jobbers' salesman. As a result, one complete colored bathroom outfit and ten water heaters were sold, as well

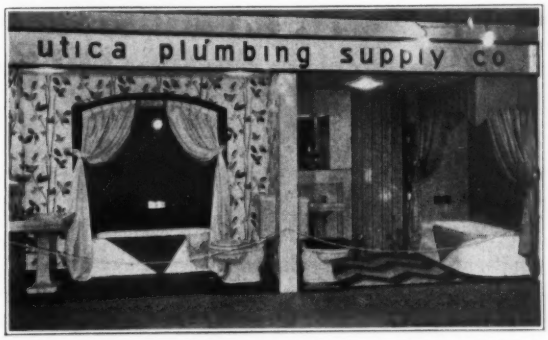


Exhibit of the Utica Plumbing Supply Co. at the Exposition of Progress at Utica, N. Y.

as a number of specialties. The sales totalled approximately $3,000, and many live prospects were lined up from which several thousand dollars more business is expected.

The Heating and Piping Contractors Utica Association also maintained an attractive booth. Three members were constantly on the job explaining and selling "Certified Heating." A large sign was displayed. This read, "Certified Heating Assures Comfort. Only members can give you this heat assurance." Among the items displayed was a large boiler with a sign reading "Boiler Required by

A Beauty — Dressed in Crome and Black

HERE'S a Central swing spout sink fixture expressive of the modern note in design—yet conservative both in line and color. The black vitreous china soap dish and handles are in rich harmony with the Central Crome-plated body and spout. Either nickel or Crome can be furnished. Body cast in one piece. Anti-splash spout. Self-draining soap dish.

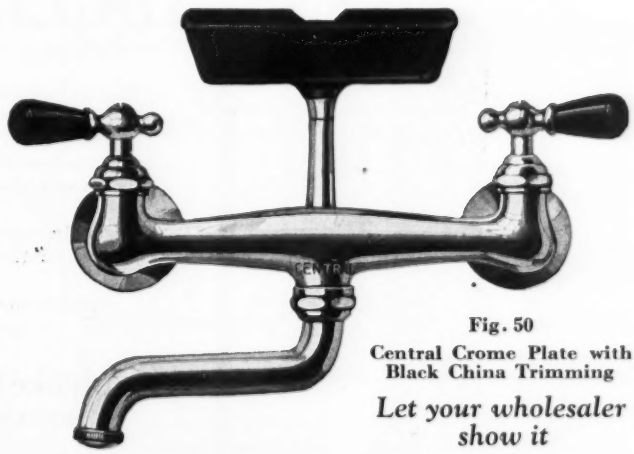


Fig. 50
Central Crome Plate with Black China Trimming

Let your wholesaler show it

The CENTRAL BRASS MFG. CO.
CLEVELAND, OHIO.

Certified Heating." Next to this was a small boiler with a sign that read "Boiler Ordinarily Installed." Another sign read "Note the Difference." The same comparison was made with large and small sized pipe. As a result ten heating jobs were sold.

The exposition was considered a huge success by all branches of the plumbing and heating industries, and is the forerunner of a co-operative advertising and merchandising campaign planned for the near future.

CHICAGO PLUMBERS CLOSE GOLF SEASON

On Thursday, October 18, the Plumbing Contractors' Association of Chicago played off the last golf tournament of the year at Cog Hill Golf and Country Club. Fifty-three members and guests teed off for the afternoon round, which marked the close of the fourth year of tournaments sponsored by the association.

As customary, the feature of the dinner in the evening was the awarding of the season's prizes. J. J. Flavin was awarded the C. R. Crane II Trophy for the lowest average net of the season of 76¼. Ralph B. Reedy received the E. F. Olsen Trophy with the lowest average gross of 89. Runner-up was William Harvey, with an average of 94¼ to win the E. Stevenson Trophy.

In Class B the low net for the best four games was recorded by S. McCarthy, whose 75 won him the association cup. The same prize in Class C went to John Blair, with a low net for the four best games of 83½. He was awarded the West Side Trophy.

Prizes for the day were awarded as follows: Class A, first prize to H. A. Blake; second prize, Ralph B. Reedy; third prize, John S. MacKenzie, who was chairman of the association's golf committee for the season. In Class B, first prize went to Charles Scholz; second, S. McCarthy; third, Peter M. Munn. In Class C, first prize, W. F. Knauss; second, H. Sievers; third, E. C. Wagner.

Guest prizes were awarded to W. J. Lee; second, J. T. Fitzsimmons; third, Frank S. Hackett. W. S. Eadie won the morning qualifying round.

After the dinner a few words were said by John Kohler, son of Walter Kohler, president of Kohler Co., W. G. Bergner, secretary of the Plumbing and Heating Industries' Bureau, and Dick Johnson, president of the Illinois Master Plumbers Association.

Scores for the day were as follows:

	G.	H.	N.
Peter M. Munn	101	25	76
J. M. Grace	112	27	85
G. F. Winkler	104	25	79
C. A. Bolton	112	26	86
Chas. Scholz	91	25	66
Jos. Gooch	88	11	77
H. A. Blake	92	18	74
Oscar Lindahl	107	23	84
Wm. S. Eadie	127	34	93
Chas. D. Harris	131	35	96
C. E. Pullum	119	35	84
H. A. Clauson	119	25	94
Herman Scheel	114	30	84
P. D. Parsons	104	25	79
E. C. Oakes	105	27	78
W. F. Knauss	112	34	78
E. Sanger	107	16	91
Perry Russell	111	21	90
John T. Fitzsimmons	98	22	76
John S. MacKenzie	96	20	76
E. C. Wagner	128	35	93
Al. Grosch	141	35	106
L. Lange	91	12	79
N. H. Connelly	110	24	86
Ralph Reedy	90	14	76
J. J. Flavin	104	19	85

	G.	H.	N.
C. W. Jones	98	21	77
Wm. Harvey	96	17	79
R. C. Flinder	93	11	82
F. Fabri	105	23	82
A. H. Jolliffe	98	16	82
Ed. Mortimer	98	21	77
H. Sievers	114	35	79
H. Yelton	99	17	82
James H. Mullen	153	35	118
C. A. Ragan	124	30	94
Walter J. Blyth	115	27	88
John Blair	122	33	89
Chas. McKay	133	35	98
Steve McCarthy	93	23	70
Jos. W. Cannon	114	27	87
C. D. Brownell	91	13	78
J. Johnson	103	18	85
C. A. Dreier	112	26	86
Frank Hackett	99	23	76
Dick Johnson	103	20	83
C. Douglas	90	12	78
E. C. Hoelscher	119	27	92
W. Mulady	88	10	78
L. J. Kemps	103	17	86
W. J. Lee	98	28	70
F. Zimmer	103	21	82
M. Nelson	94	15	79

The Entire Countryside

You do not have to confine your selling efforts on Holyoke Water Heaters to any restricted area. For the city, the Holyoke Gas Water Heater can be pushed, and for the suburban districts and farms, the Holyoke Kerosene Water Heater is incomparable.

Study the construction of Holyoke Heaters and you will at once understand why they are superior.

Write us for our complete catalog.

Holyoke Heater Co.
HOLYOKE, MASS.

CRITICAL MOMENTS OF HISTORY

Two newspaper men and a round fifty guests at a banquet recently had to be carried out in a dead faint when a speaker prefaced his remarks by stating: "While I was preparing my address for tonight.

We leave to our readers' imagination what happened when he went on:

"The finest accomplishment of my life was being born into a family which had money. Then, too, I was lucky. I was sent to college, but I do not remember that I opened a book. When my father died, he left me his business, and a very efficient private secretary. My golf game, therefore, did not suffer by my plunge into the business world. When the time came for me to make the big decision of my business career—whether I should fight my competitors or combine with them, I flipped a coin.

"The only thing I ever did to add to my fortune was to put a thousand dollars on a hundred-to-one shot at the races."

Lady (to hobo): "So you once were an actor?"

Hobo: "Yes'm. I had a leading part in 'Days of Old Kentucky.'"

Lady: "You did?"

Hobo: "Yes'm. I was a groom an' I led the horses back to the stable."

BLUE FLAME

One of the Chinese generals recently lost a battle. It cost him twenty thousand soldiers and he also lost ten wives. An American commentator says it's a wonderful genius who can turn such a defeat into glorious victory.

There once was a man named Nap
Who drove with a girl on his lap,
But just as he gave her a squeeze a
Train came by and now he's a
Tack on an accident map.

TRUTH WILL OUT

It was after dinner. The ladies had retired. A gentleman spoke:

"I've kissed the South Sea maiden; I have kissed the dainty Japanese maiden; I have kissed girls of sunny Spain and frivolous France. But, truthfully, to kiss my wife is best of all."

A young man leaned across the table and said: "You're right there!" P. G. N., Chicago.

REVENGE

"Three gallons of gas, please," said a man driving up to a filling station.

"Yes, sir. Want some cylinder oil, too?"

"No; just gas."

"Do you want some paint? Your car needs it, and we've got some dandy paint, heat proof, dirt proof, guaranteed to wear long."

"No; I only want gas today."

"Want your car washed?"

"I said I wanted only gas."

"You'll want a tire, anyway. We've got some good non-skids. Only $40 apiece. Want one? Yours——"

"I tell you I want only gas today."

"Yes, sir; but, say, your rear lights are all shot to pieces. You need new ones. We just got in some dandy new crack-proof celluloid lights. Shall I put some in?"

"No! I only want gas, do you understand?"

"Your magneto needs adjusting—didja hear that funny noise in the motor when you stopped? It needs adjusting. I'll fix it, what?"

"No! I only want gas, gas! Do you hear?"

"Yes, sir."

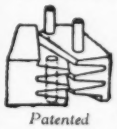
The motorist drove away, but for once the garage man had got even with his barber. K. B. G., Mt. Morris, Ill.

Please Note: All election bets must be paid by the tenth of the month following the election. L. Y. T.

A new toilet seat is something that everyone wants as soon as the one they have gets even a little bit worn. Sell Built-Well seats to this vast, waiting market.

You can get them from your jobber.

The Built-Well V-Lock Joint

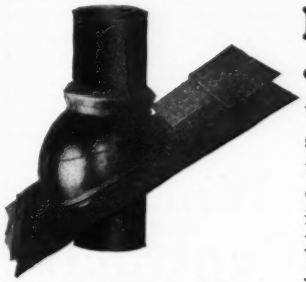


Sectional view of joint, turned upside down to show how dowels are inserted from bottom. Moisture only makes them tighter.

Patented

Built-Well Mfg. Co. 300 N. Robey Street Chicago, Ill.

BULLARD



You, too, will understand, after you have used one, why so many contractors use nothing but Bullard Roof Flashings for every job.

Made from the finest virgin metals, fit any roof, last a lifetime.

Your jobber has them

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Matchless quality in fittings of perfect design is not only the aim but also the accomplishment of the Richmond Foundry. That is why discriminating workmen stick by Richmond Products.

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The RICHMOND FOUNDRY & MANUFACTURING CO
RICHMOND, VIRGINIA

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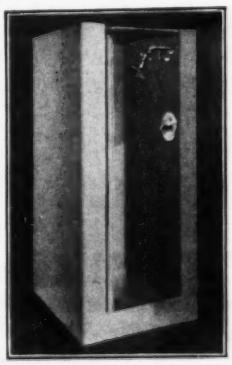

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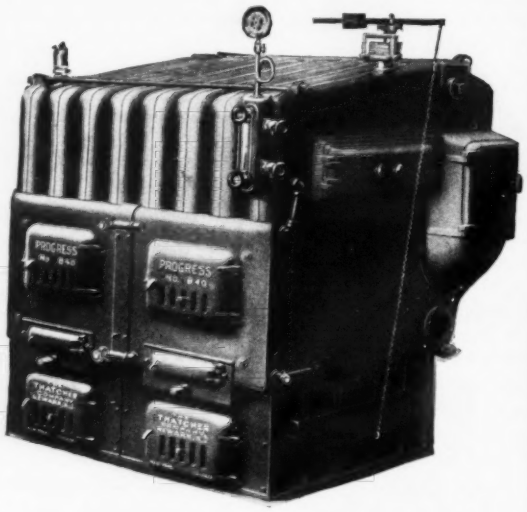
MANUFACTURERS SINCE 1855
MILWAUKEE, U. S. A.



You Can Win BIG Heating Contracts

With

Thatcher "Progress" Boilers

Apartments, Churches, Schools, Garages, Municipal buildings, etc. That's the heating range of Thatcher "Progress" Boilers.

And here's another sound selling point. When the owner desires to enlarge his building he need buy only an additional unit or two—a new heating plant is unnecessary.

You can bid on and win many big heating jobs with Thatcher "Progress" Boilers. They, of course, employ Thatcher "Triple Fire Travel"—the heat economy construction associated with Thatcher "Staggered Fire Travel." Write for details.

THE THATCHER COMPANY
39-41 St. Francis St.
NEWARK, N. J.
New York: 21 West 44th St. Chicago: 341 No. Clark St.

THATCHER
BOILERS-FURNACES-RANGES

Bath a Day Movement

We received an inquiry a few days ago from Dorothea Meininger, of Haskell School, Haskell, N. J. Before we had time to list it in this column, a letter from Chas. J. Samuel, secretary of the New Jersey state association reached us, requesting that we send copies of "The Story of the Bath" to Miss Meininger, to be charged to the state association. So we add one more city to the list of those in which the booklet is used as supplementary reading in the schools. Below are inquiries which have not as yet been handled, although they were referred to either local or state associations.

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Lila Stutts,
CHILDERSBURG, ALA.
Dorothea Ross,
T. C. I. Instructors Cottage,
ENSLEY, ALA.
Harold Leisy (Pupil),
(Teacher: R. H. Hall),
PASO ROBLES, CALIF.
M. Class,
OLATHE, COLO.
Dorothy E. Wilson,
80 Main St.,
WEBSTER, MASS.
Archibald Landry,
1944 LaSalle Gardens, S.,
DETROIT, MICH.
Mrs. Sadie Hardy,
BOONEVILLE, MISS.
Mrs. J. H. Parker,
R. F. D. No. 2,
SUMMIT, MISS.
H. D. Williams,
CORNING, MO.
Miss Adele Davis,
41 E. 41st St.,
NEW YORK CITY.
Miss M. L. Fletcher,
Seward Park Jr. High School,
Hester & Essex Sts.,
NEW YORK CITY.
C. Passow,
782 E. 175th St.,
BRONX, NEW YORK CITY.
Sarah C. Olmstead,
State Normal & Train. School,
OSWEGO, N. Y.
Ruth Tingee,
GRANTSBORO, N. C.
Catherine Moore,
2034 E. 102nd St.,
CLEVELAND, OHIO.
Leona M. Haff,
CRESTON, OHIO.
Margaret Coseo,
Box 116,
DEGRAFFE, OHIO.
Dorotha R. Mitchell,
Dept. of Vocational Education,
MONROEVILLE, OHIO.
Josephine Britton,
PIKETON, OHIO.
Alice Bower,
RAWSON, OHIO.
Mrs. C. W. Moore,
Old Central School,
WASHINGTON C. H., OHIO.
Eliz. D. Carmichael,
403 E. Lincoln Highway,
COATESVILLE, PA.
Richard Beale,
Ralston School,
FREEPORT, PA.
Jesse H. Helsel, Jr.,
505 Pine St.,
HOLLIDAYSBURG, PA.
Dorothy G. Rohrer,
645 Haws Ave.,
NORRISTOWN, PA.
Gertrude Berg,
DALLAS, SO. DAK.
C. S. Sams,
R. F. D. No. 2,
BLUFF CITY, TENN.
J. Wesley Harris,
East Mayfield School,
EAST MAYFIELD, TEX.
Bertha Jones,
OSAGE, TEXAS.
Miss G. L. Perry,
B. T. Washington School,
NORFOLK, VA.
Mrs. Emma L. Baron,
1513 2d Ave.,
CHARLESTON, W. VA.
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CHARLES TOWN, W. VA.
Retta Shephard,
Dodge School,
BLOOMINGTON, WIS.
Esther R. Roe,
Jefferson School,
CASPER, WYO.
Mary Dessert,
Box 424,
GREEN RIVER, WYO.

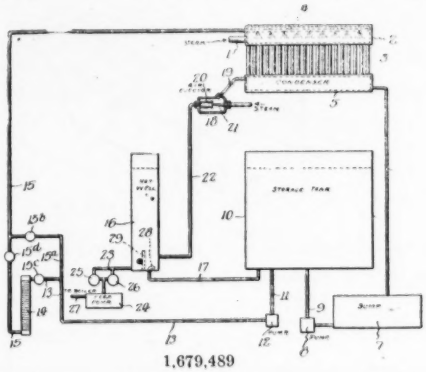
ORGANIZE HEATING ASSOCIATION IN SEATTLE

In order that certified heating installed in Seattle shall be in accordance with standards based on engineering computations and practical experience, the heating and piping contractors of the city have incorporated, with no capital stock, an organization to be known as the Heating and Piping Contractors' Seattle Association. The papers of incorporation list the names of B. E. Rose, C. P. Daly, J. J. Ward, William Ruddell, and C. F. Twist. The organization will promote and regulate the heating and ventilating business. Executive offices have been opened in charge of J. N. Belanger, 232 Securities building.

Plumbing and Heating Patents

Plumbing Department

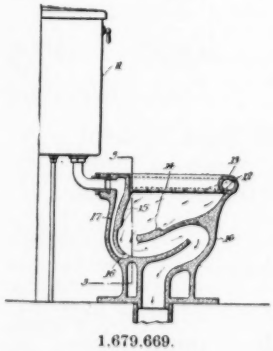
1,679,489. Water System. Charles B. Page and Warren Dean Burton, Evanston, Ill., assignors to George W. Dulany, Jr., Chicago. A water system comprising, in combination, a radiator for condensing steam, a sump to receive water from said radiator, a cool-water storage tank, a pump for forcing water from the sump to the storage tank, a relatively small hot well, an equalizing pipe connecting the lower portions of said storage tank and hot well, an air ejector for withdrawing air from the radiator, said ejector comprising a steam nozzle, the mixture of air and steam being delivered to said hot well, a pump for delivering hot boiler feed water from the hot well, a second radiator, a spray pipe operatively related to the first radiator, and a pump for forcing cool water from said storage tank through second radiator and thence to spray pipe.



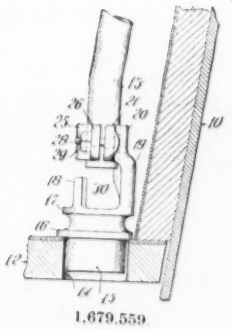
1,679,489

* * *

1,679,559. Drain-Pipe Guide. Charles H. Bilty, Milwaukee, and Albert E. Tellefsen, West Allis, Wis. A device of the character described, comprising a conduit portion, the perimeter at one side being provided with an upstanding arm terminating at top in a pipe engaging portion, one side of said portion being bifurcated while the other side has an opening, and a pipe clamping member, one end whereof has oppositely disposed portions adapted to interlock with the bifurcations of the arm, while the other end has an opening adapted to register with the opening in the arm and to receive a fastening bolt.



1,679,669.

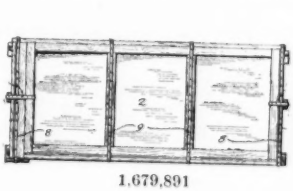


1,679,559

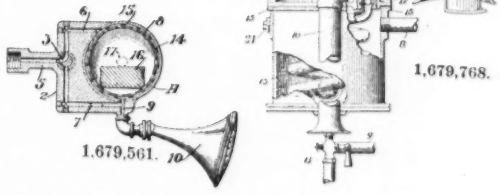
1,679,669. Sanitary Water-Closet. Albert H. Kennedy, Rockport, Ind. A water-closet bowl of the syphon trap type comprising a rim conduit having a plurality of downwardly and rearwardly directed jet openings all arranged to discharge with substantially full force along the rear wall of the bowl at the throat and baffle means on the bottom of the bowl to prevent the streams discharged from the front of the rim from flowing across the throat, said baffle means being arranged to deflect the jets to the sides of the throat and against the rear wall thereof.

* * *

1,679,561. Plumbing Fixture. Frank J. Cantrell, San Francisco, Calif. In a fixture of the character described, having a cylindrical chamber formed therein, a head member forming a permanent closure for one end of the cylindrical chamber, a removable head member forming a closure for the opposite end of said cylindrical chamber, a cylindrical shaped soap receptacle, insertible in said cylindrical chamber, a head member on one end of the soap receptacle, a pin thereon extending into the fixed head of the cylindrical chamber and forming a journal or support therefor, an annular flange on the opposite end of the soap receptacle, and an annular flange on the removable head member, forming a support and journal for the soap receptacle flange, impeller members formed on the exterior surface of the soap receptacle and water inlet and outlet connections formed on the casing in communication with the interior casing and the soap receptacle, said inlet connection having an inlet passage communicating with the soap receptacle, said inlet passage being disposed on a tangent with relation to the impeller members so as to rotate the receptacle when water is passing through the casing.



1,679,891



1,679,768.

1,679,561.

1,679,768. Auxiliary Water Heater. Andre F. Gobin, Brooklyn, N. Y. In a device of the character described, a pipe circuit comprising a plurality of coils of pipe arranged in series to conduct a fluid serially therethrough, said pipe circuit being divided into sections, a casing surrounding the coils of the pipe circuit, a partition dividing said casing into compartments, said partition having an opening through which the pipe extends and wherein abutting ends of the pipes comprising the sections are placed and meet, a watertight joint surrounding said ends in said opening, said joint serving to seal the abutting ends of the sections and the opening, means for supplying a heated fluid to one of said compartments and around the coils therein, and a burner within another of said compartments for heating the coils therein.

* * *

1,679,891. Bathtub Shipping Crate and Cover. Paul M. Bees, Chicago, Ill., assignor to Cornell Wood Products Co. A bathtub shipping and protecting device comprising

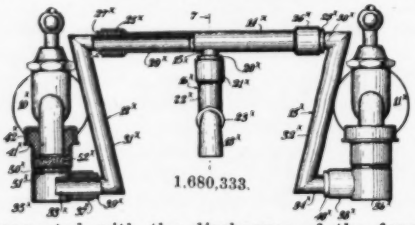
a cover, an apron secured thereto to form a bathtub protecting unit, a rear wall, a bottom wall and end walls secured to one another to form a second unit adapted to interfit with the first unit, and metal straps connecting the two units to completely enclose the bathtub for shipment, said metal straps adapted to be cut at pre-determined points to permit the second unit to be removed from the bathtub, leaving the first unit as a protective covering for the top and front faces of the bathtub.

* * *

1,679,777. Process of Treating Water. Arthur R. Moberg, Elmhurst, Ill., assignor, by mesne assignments, to National Aluminate Corporation, Chicago. The process of purifying and clarifying water, which comprises adding sodium aluminate and aluminum sulphate to the water to be treated, the sodium aluminate being in relatively small quantities as compared with the aluminum sulphate.

* * *

1,680,333. Water-supply-faucet Attachment. Louis Kooperstein, New York, N. Y. A twin faucet attachment comprising a tubular coupling member to lie between the faucets and having a forward discharge, cups adapted

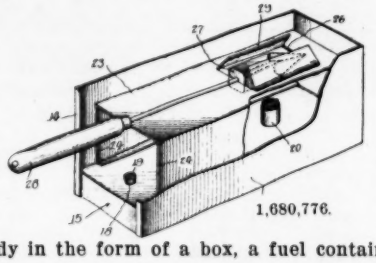


1,680,333.

to be connected with the discharges of the faucets and having outlets, main branch pipes, slidably and rotatably connected at their upper ends with the ends of said coupling member and slidably and rotatably connected at their lower ends with the outlets from said cups, said discharge from the coupling member comprising a nipple rigid with said member, a tubular angle-coupling having one of its members rotatably mounted on said nipple and a spout on the other coupling member.

* * *

1,680,776. Soldering Furnace. Ernest David Fahlberg, Madison, Wis., assignor to E. D. Fahlberg Mfg. Company, Madison, Wis. A soldering furnace having, in combina-

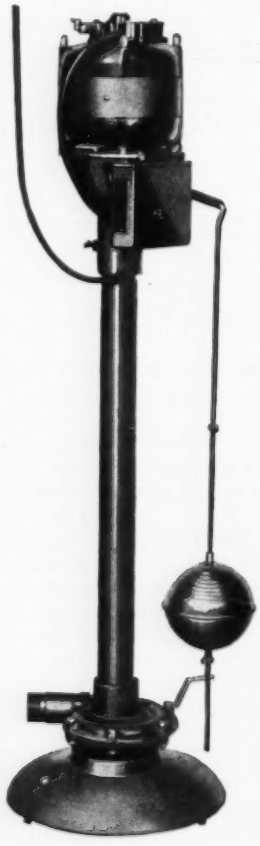


1,680,776.

tion, a body in the form of a box, a fuel container forming the bottom of said box, a burner on said container, a removable tool holder and burner hood in said box, and means for closing said box.

* * *

1,680,288. Automatic Drain Valve. Albert Gottschalk, New York, N. Y. A drain valve structure comprising a body having internal chambers adapted, respectively, to communicate with a reservoir and a source of control pressure, said body having an outlet port, oppositely facing valve seats intermediate said chambers, valves disposed, respectively, in said chambers and co-operating with said valve seats, and means arranged in one of said chambers, to be operated by the control pressure supply



ANNOUNCING

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Motor ¼ H. P. A. C. 60 cycle 110 volts split phase standard equipment. Any A. C. 110 or 220 split phase motor optional.	$80.00	$65.00
Motor ¼ H. P. Repulsion Induction or direct current.	$90.00	$75.00

List F. O. B. Detroit

The Ideal is the simplest, strongest and most efficient portable, electric-automatic, drainage pump or basement drainer made. Pumps from 3000 to 3500 gallons per hour with lift of 15 to 20 feet.

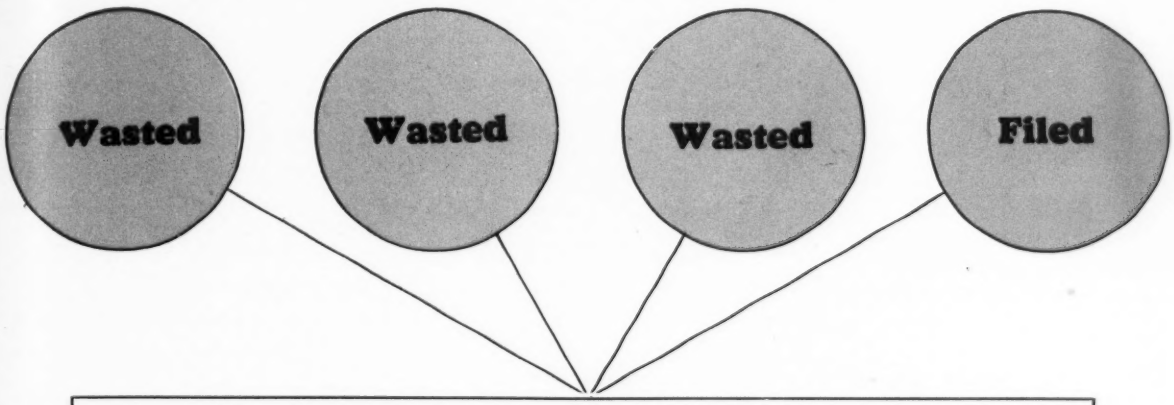
Let the Ideal solve your drainage problems.

Main bearings in Ideal drainage pumps are annular ball type, entirely submerged in oil at bottom of pump, eliminating all unnecessary friction; an exclusive Ideal feature.

Ask your jobber or write direct for further particulars

IDEAL PUMP CO., 1202-1204 West Fort St., Detroit, Mich.

How to Eliminate Waste in Catalog Distribution



A recent survey shows that 3 out of 4 Catalogs and Circulars distributed by the average manufacturer of Plumbing and Heating Supplies are immediately discarded and aside from momentary attention value can be considered waste distribution.

How Above Percentages were Compiled

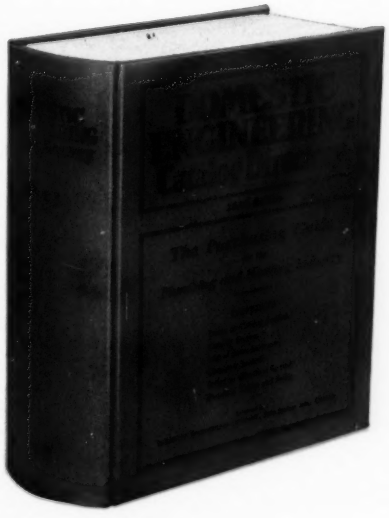
In a recent survey made by Domestic Engineering Company among the Wholesalers of Plumbing and Heating Supplies, all over the United States, the question of what happened to individual catalog and circular material was asked. It was discovered that an average of 75% of all the individual catalogs and circulars sent to the wholesalers by manufacturers is discarded immediately upon receipt.

Reasonableness of Percentages

This same survey showed that many wholesalers receive from 25 to several hundred individual catalogs and circulars through the mails in one week's time. It is readily seen how impossible it would be for a wholesaler to keep all this material in file. To do so, would necessitate having an extremely large filing space and would require all the time of one person to keep the material in shape so it would be of any use. It, therefore, seems most reasonable that at least 75% of this matter is immediately discarded.

What This Means to the Manufacturer

This means, when the average manufacturer puts out his catalog that as soon as it is off the presses and sent through the mails it runs the risk that only 25% of the total distribution is going to be useful. If this is true, it means that the net cost of the unit catalog is going to be materially increased. For example, if a manufacturer has 4000 catalogs printed at a cost of about 25 cents each, and only 1000 are used, this would make the net cost of each usable catalog $1.00. In many cases where expensive catalogs are produced the dollar and cents waste would be a great deal more than stated above.



Is the 25% Distribution Efficient?

The question now arises whether or not the catalogs that are kept in file work efficiently. A certain percentage of them will be misfiled, misplaced or lost in some way. Many of them will not be available when wanted. And it is practically impossible for a wholesaler to keep a complete index so he will know when to refer to some particular catalog. Therefore, while according to the survey 25% of the catalog distribution is put to use, this 25% is seen from this to be far from being 100% efficient. In fact, it is so decreased that the actual value of a total catalog mailing may amount to only about 10% as far as effectiveness is concerned.

What is the Remedy?

Manufacturers of Plumbing and Heating Products distributed through wholesalers are thus brought face to face with the fact that there is a tremendous waste of catalogs that should be eliminated.

The important thing then is to find a method by which a manufacturer's catalog can be kept constantly before the attention of the buyer, always up to date, carefully indexed to save a busy buyer's time, 100% efficient and economical in cost.

The answer is **"Domestic Engineering Catalog Directory,"** a Catalog of Plumbing and Heating Products built to the wholesaler's own specifications. A Catalog that is on the desks of practically every wholesaler of plumbing and heating supplies in the United States. A Catalog that is always ready to give the buyer information about any product manufactured in the Plumbing and Heating fields. A Catalog that is indexed and cross-indexed to make references simple and easy. A Catalog that is economical in cost and one that entirely eliminates the element of waste, assuring a manufacturer 100% catalog distribution and efficiency.

There are many more valuable facts regarding the advantages manufacturers gain by placing their catalogs in **Domestic Engineering Catalog Directory.** We will gladly furnish complete information on request.

DOMESTIC ENGINEERING COMPANY

1900 Prairie Avenue Chicago, Illinois

LISTEN IN
on this business conference!

Leaders in many fields of industry and trade will meet with the editors and publishers of The Associated Business Papers, Inc., November 15 and 16 at the Roosevelt Hotel, New York, to discuss trends in business and cooperative trade development.

If you cannot drop in for these sessions, as we cordially invite you to, you can—by tuning in your radio—hear Mr. William Butterworth, President of the Chamber of Commerce of the U. S., speak on "Business Cooperation as a Public Asset." The National Broadcasting Company, recognizing the importance of the conference to business, will broadcast this key address over the stations named below.

The editors of this publication, which is a member of The Associated Business Papers, Inc., believe that you will want to be sure to hear at least Mr. Butterworth's contribution to this important conference.

Listen in November 16

9:30 P. M. Eastern Standard Time
8:30 P. M. Central Standard Time
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WEAF New York
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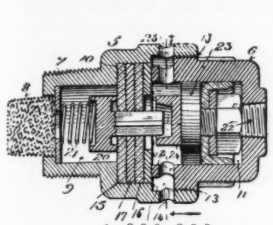
WGR Buffalo
WCAE Pittsburgh
WRC Washington
WTAG Worcester
WLIT Philadelphia
KSD St. Louis
WGY Schenectady
WOC Davenport
WOW Omaha
WJAR Providence
WCCO Minneapolis

(Subject to change. See station programs in local newspapers November 16)

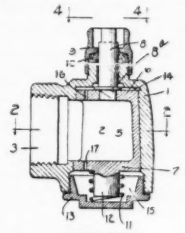
THE ASSOCIATED BUSINESS PAPERS, INC.
52 Vanderbilt Avenue, New York

The A.B.P. is a non-profit organization whose members have pledged themselves to a working code of practice in which the interests of the men of American industry, trade and professions are placed first—a code demanding unbiased editorial pages, classified and verified paid subscribers, and honest advertising of dependable products.

for seating one of said valves, the seating of said valve operating to unseat the other valve after the lapse of an interval of time during which both valves are unseated.



1,680,288



1,680,812

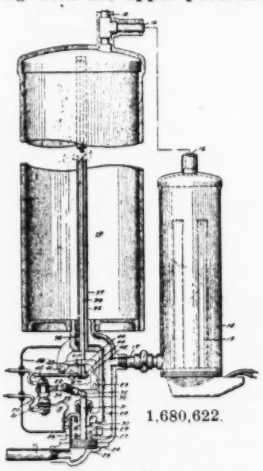
1,680,812. Valve. William E. Sloan, Chicago, Ill. A valve comprising a casing, a single rotating closing piece therein, end pieces connected with said closing piece and having conical shaped faces, said closing piece being eccentric with relation to said end pieces, conical seats for said end pieces and closing piece, the space between said end pieces beyond the closing piece being unobstructed, a stem connected with one end piece centrally thereof, both ends of said stem being noncircular, the end pieces and closing piece adapted to be moved inwardly to be disengaged from their seats so that they can be rotated to open the valve.

* * *

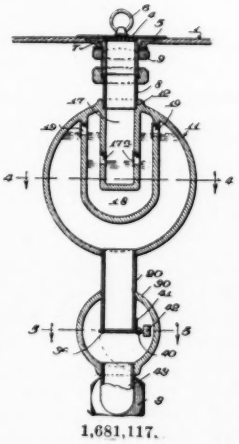
1,680,506. Method of Purifying Water. Ralph B. Derr, Oakmont, Pa., assignor, by mesne assignments, to National Aluminate Corporation, Chicago. The method of purifying water containing less than about fifty parts per million of magnesium sulphate, comprising mixing with the water a water-softening compound and sodium aluminate, and activating the formation of a coagulant from the sodium aluminate by adding to the water a material capable of producing magnesium ions and sulphate ions.

* * *

1,680,622. Electric Water Heater. Arthur J. Kercher, Berkeley, and William Wesley Hicks, San Francisco, Calif. In a hot liquid supply system, a water tank, a cool water supply pipe connected to said tank whereby the tank is normally filled with water, a hot water pipe communicating with the upper portion of said tank, electrical heat-



1,680,622.



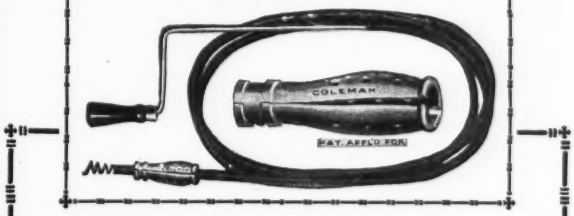
1,681,117.

ing means associated with the tank and adapted to store hot water in the upper portion of the tank by thermal circulation, and means for controlling supplying of current to the heating means.

* * *

1,681,117. Cleanable Trap for Sinks and the Like. Harley A. W. Howcott, Baton Rouge, La. A fixture of the

Coleman's



Let the Coleman Flexible Coil Wire Sewer and Pipe Auger cut your time costs and make your work more satisfactory. Easily removes the most obstinate obstructions from vacuum drain pipes or sewers.

Allan J. Coleman, 208 N. Wabash Ave., Chicago, Ill.

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EMERGENCY TUBE PLUG

This Emergency Tube Plug is easy to use. Once in place it will hold securely. Because of the tapering thread it cannot loosen.

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Stop Water Hammer With

The STINSON Patent Equalizing Valve

A system designed to prevent Water Hammer and any reaction in the water supply system in the building. If properly installed, the Stinson Equalizing Valve is guaranteed to completely and thoroughly remove any vibration in water pressure systems of piping.

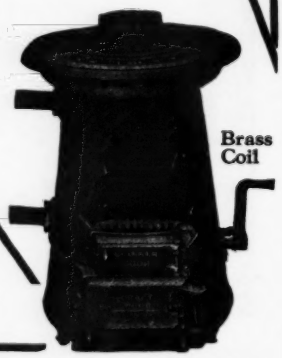
The Valve is made in sizes as conditions require.
Stock sizes: 1¼, 1¾ and 2¼ inch.
1¼ inch will take care of from ½ inch to 1¼ inch supply.
1¾ inch will take care of from ½ inch up to 2 inch supply.
2¼ inch will take care of from 2 inch up to 4 inch supply.

Send rough sketch of piping in basement and I will advise you the proper place to install the equalizer.

Robert Stinson, 1632 Forbes Street, Pittsburgh, Pa.

CLE-BAR Water Heater

The Cle-Bar Water Heater rightfully takes its place among the very foremost of products of this type. Its unerring performance and steadfast dependability have won for it this place which it maintains by its constant faultless service. *For use wherever hot water is needed.*



Brass Coil

Write for particulars. We will be glad to furnish you with complete specifications and give you any help possible on your water heating problems.

CLEGHORN CO.
86 Broad St., Boston, Mass.

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C. S. B. Sprinkler Heads give complete protection. They are easy to install and are trouble-proof.

Every genuine C.S.B. is stamped with the date it is sealed and fusing degree.

Your inquiry will bring complete information

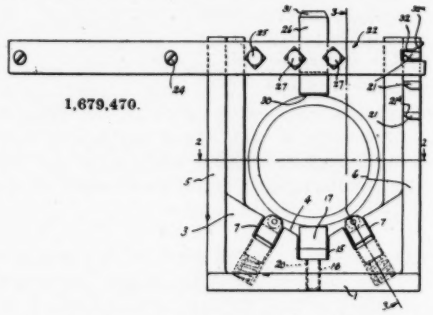
C S B

C. S. B. SPRINKLER CO.
86 Broad St. :: Boston, Mass.

class described comprising a truncated cylindrical fluid-tight receptacle having diametrically opposite openings in the periphery thereof to provide an inlet and an outlet therefor, a chamber formed in said receptacle and communicating with said inlet, another chamber surrounding said inlet chamber and spaced from the walls of the receptacle, screened openings in the inlet chamber above the bottom thereof, similar openings in the other chamber at points above the openings in the first mentioned chamber, whereby a water seal is provided in said chambers in the path of the material passing from the inlet to the outlet.

Heating Department

1,679,470. Pipe Cutter. Louis H. Goeltz, Milwaukee, Wis. A pipe cutter comprising co-operable chisels and

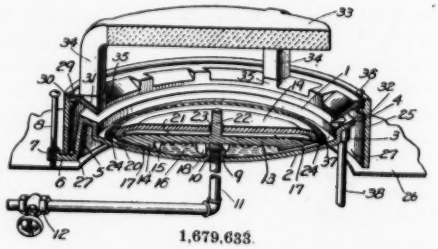


1,679,470.

means for centering the pipe between the chisels, including a pair of spring projected rollers.

* * *

1,679,633. Oil Burner. William L. Six, Kansas City, Mo. An oil burner comprising a bowl adapted for containing oil in fluid state, means for delivering oil to the bowl,



1,679,633.

a plate covering the bowl and spaced therefrom at its periphery to provide a restricted outlet, a heat insulating plate above the covering plate for retarding vaporization of contents of the bowl, a wick adjacent the outlet, and means for directing air over the wick to support combustion.

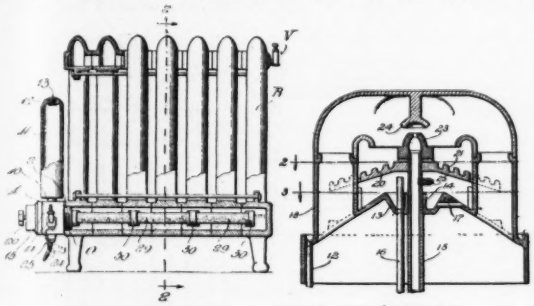
* * *

1,680,104. Steam-Heating Attachment for Radiators. Cecil A. Head, Royal Oak, Mich. A steam generating attachment for a steam generating and collecting chamber, comprising an electric heater for reception in the chamber, a controlling switch for said heater, a water receiver adapted to receive water forced from the chamber by steam pressure and a common carrying member for said heater, said switch and said receiver, said member having a passage to place the receiver in communication with the chamber; said carrying member having a threaded portion for coupling it to the chamber.

* * *

1,680,193. Oil Burner. Vito Aiello, White Plains, N. Y. An oil burner which comprises a spill plate, substantially conical in shape, having a central cup and a peripheral

groove, a discharge pipe connected to said groove, a substantially conical shaped burner plate disposed above the spill plate, an oil feeding pipe leading to the center of the burner plate and adapted to feed oil to the top of the

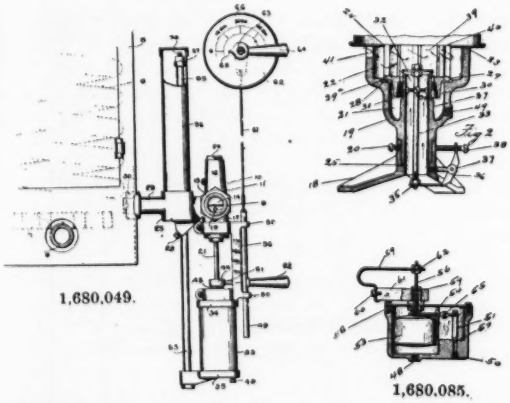


1,680,104. 1,680,193.

burner plate, and means between the two plates for permitting oil to flow from the oil feeding pipe into the cup of the spill plate whereby the under surface of the burner plate may be preliminarily heated.

* * *

1,680,049. Heater Appliance. Frank A. Gauger and Roy W. Johnson, Milwaukee, Wis., assignors, by mesne assignments, to Time-O-Stat Corporation, Milwaukee, Wis. In a device of the class described, a fuel supply connectable with a burner, means for connecting the fuel supply with the burner, and means for flashing an igniting jet of flame toward the burner, said first named means automatically disconnecting the fuel supply from the burner after a predetermined period of operation.

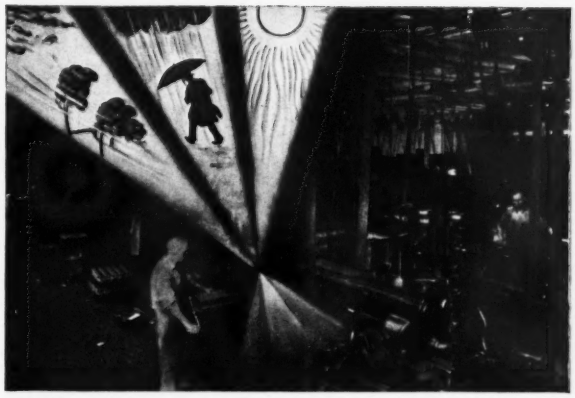


1,680,049. 1,680,085.

1,680,085. Means for Burning Liquid Fuels. James L. Breese, Jr., Lake Forest, Ill., assignor to Oil Devices Corporation, Chicago. In a burner of the class described, a chamber for containing a body of oil, a combustion chamber above the same, a heat conductor intermediate the combustion chamber and oil chamber and extending into the latter to vaporize oil therein, a thermostat, and means controlled jointly by the thermostat and the level of the oil in the oil chamber for feeding oil to the latter.

* * *

1,681,045. Gas-Fired Boiler. Alexander A. Marks, Philadelphia, Pa. In an apparatus of the class described, the combination of a series of similar parallel thin hollow heating units adapted to contain water, the said units being slightly separated at their central portions and at their tops and bottoms to provide vertically extending flues for hot gases and the said units being provided with transverse openings in register with each other to form a chamber extending from end to end of the series and surrounded on all sides by the water spaces of the said units, means for closing the chamber at the ends, means for



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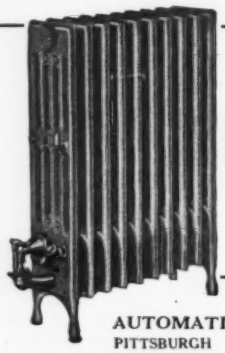

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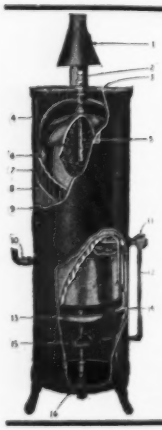

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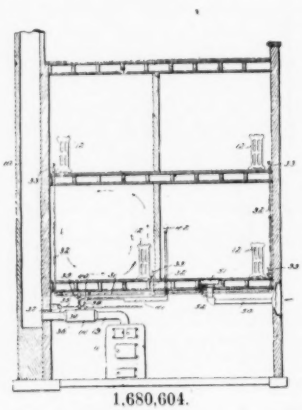
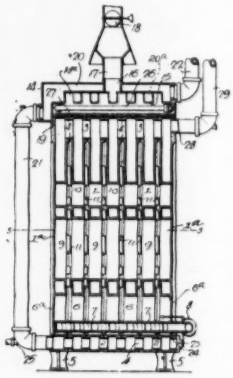
connecting the interiors of the heating units at the tops and bottoms, and a heating device located in the chamber, the said heating device receiving preheated air through the spaces between the bottoms of the units and delivering hot gases to the flues between the upper parts of the units.



1,680,604.

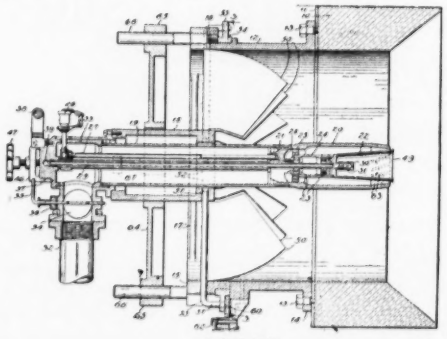


1,681,045.

1,680,604. Humidifying apparatus. James Arad Erwin, Oak Park, Ill. A humidifying apparatus including in combination, a heating plant having a flue for waste products of combustion, a steam or vapor generating tank, a conduit for conducting steam from said tank to a space to be humidified, and means for automatically delivering steam from said tank into said waste products flue when the pressure in said tank exceeds a pre-determined amount.

* * *

1,680,455. Oil Burner. Milton A. Fesler, Stamford, Conn., and James N. MacRae, Jersey City, N. J., assignors to Petroleum Heat and Power Company, New York, N. Y. A liquid fuel burner, comprising in combination, a rotatable fuel cup, means for supplying liquid fuel to said cup, serrations or teeth at the discharge end of said cup,



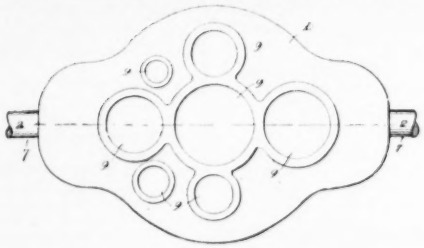
1,680,455.

said teeth being arranged in staggered relation to each other for imparting a swirling movement to said fuel substantially equal to the speed of rotation of the cup, and means for producing a swirling envelope of air about said cup moving in a direction opposite to the swirling movement imparted to the fuel by the cup and into which envelope the fuel is discharged from said cup by centrifugal force.

* * *

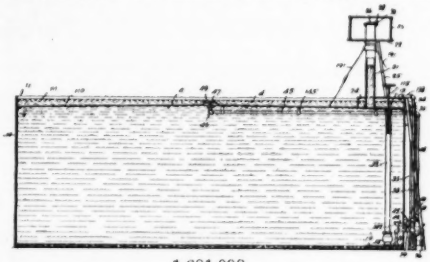
1,680,984. Die stock. John J. Grove, Detroit, Mich. A die stock comprising a plate provided at its intermediate portion with a group of openings, one of said openings being located at the center of the plate and at the center of the group of openings, said plate having upon its side surface a continuous rib completely surrounding each opening of the group and all of the openings of the group,

the plate having at its opposite side and at opposite points of its edge aligned lugs, a die plate carried by the lugs, and handles detachably connected with the lugs.



1,680,984.

1,681,098. Oil-Storage Tank. Milton Ona Clark, Clarkston, Mich. An oil tank including a main reservoir adapted to contain oil, a roof tank on the said reservoir adapted to hold water, means establishing communication



1,681,098.

between said auxiliary roof tank and the said main reservoir, and a stack rising from the top of the main reservoir and communicating therewith to cause oil to rise in said stack after the oil has risen to the roof of the main reservoir.

* * *

1,680,844. Welding of Copper and Copper Alloys. Frederick M. Becket, New York, N. Y., assignor to Electro Metallurgical Company, New York, N. Y. A welding rod consisting predominantly of copper and silicon, the silicon being present in amount between 1.25 per cent and 4 per cent.

* * *

1,680,466. Reaming Tool. William H. Evans, Chicago, Ill., assignor to Evans Flexible Reamer Corporation, Chicago. A device of the character described comprising a hollow sheet metal cutter member having a substantially conical portion with integral out-struck teeth thereon, said teeth being inclined to the radial in a plurality of series, the inclination of one series being opposite to that of the other series, said teeth being resilient and having their cutting face bent rearwardly relative to the direction of rotation from the base of the teeth whereby when the cutting edge strikes an obstacle the bending of the resilient tooth causes the edge to recede from the work.

* * *

1,681,126. Pipe-Flange Tool. George E. McDonnell, Cedar Rapids, Iowa, assignor of one-half to Thomas F. McDonnell, Cedar Rapids, Iowa. A pipe-flange driver, comprising a bar pierced for fastening bolts, and adapted for bolting to flanges of varying diameters, and a hub to be gripped by a pipe-wrench projecting midway from said bar.

* * *

1,681,157. Valve. Lewis W. Eggleston, Buffalo, N. Y., assignor to American Radiator Company, New York, N. Y. In a valve of the character described, a casing having a port, a valve co-operating with said port, a lever for op-

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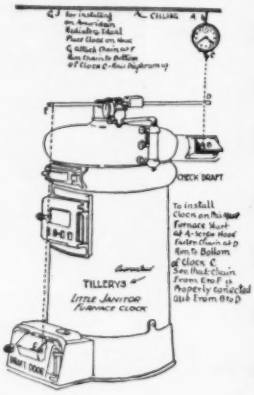

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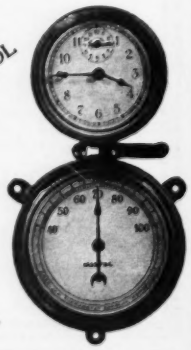

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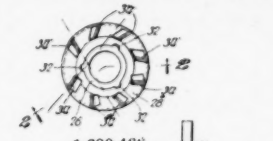
erating said valve, a second lever, a tension spring connecting said levers, said second lever being movable to position said spring to exert its force to move said first



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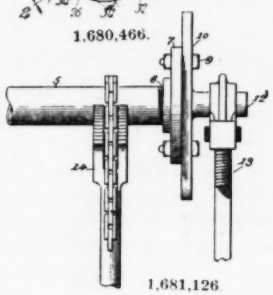
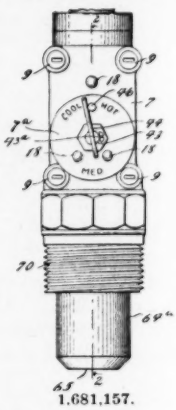


1,681,126

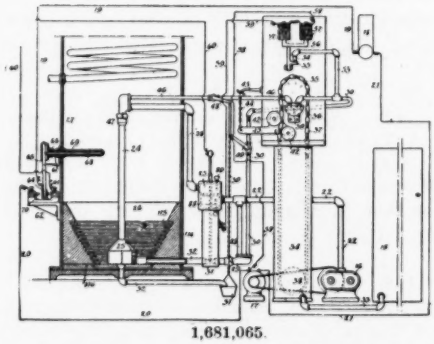


1,681,157.

lever in opposite directions, means whereby said spring normally exerts its force to swing said second lever to so locate the spring as to cause the first lever to move the valve to open position, and means responsive to a characteristic of a liquid or gas for controlling movement of said second lever.

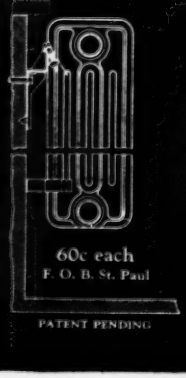
* * *

1,681,065. Oil-Burning System. Alden Aaron Steward, Rutland, Vt. An oil burning system comprising an air and oil burner, an air and oil igniter therefor, air supply



1,681,065.

pipes leading to the burner and its igniter respectively, an oil measuring and delivering device including a basin, a transverse partition having a hinged upper wing, dividing the basin into two compartments into both of which the oil is delivered, and oil supply pipes leading from said respective compartments to the burner and igniter.



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